AMERICAN GAS ASSOCIATION

Monthly

EPTEMBER
1959

Hotter than a firecracker!

The Gold Star Gas Promotion

Let Gas Ranges of GOLD STAR quality make money for YOU, too!

The trend continues. Gas range sales are still on the rise all across the nation. As indicated by latest figures released, the Gold Star promotion has substantially increased sales of Gas ranges in market after market. What this means to you—the Gas range dealer and salesman—is self-evident: Gas ranges built to Gold Star standards are making money for everyone. If you haven't yet made the Gold Star a part of your operation—do it right away. Then you, too, will sell more Gas ranges, ring more cash registers, make more money for yourself!

AMERICAN GAS ASSOCIATION

There are more than 28 reasons—28 advances in performance, automation and design—that make Gas ranges built to Gold Star Standards your big-money ranges of 1959!

SHOW OFF

The GOLD STAR AWARD for a big profit **PAY-OFF**

Look to these names for ranges built to GOLD STAR standards

BROWN FEATURAMIC • CALORIC • CROWN
DIXIE • GAFFERS & SATTLER • GLENWOOD
HARDWICK • KENMORE • MAGIC CHEF
MODERN MAID • MONARCH • NORGE
O'KEEFE & MERRITT • REAL HOST
RCA WHIRLPOOL • ROPER • SUNRAY • TAPPAN
THE BOSTON STOVE COMPANY • UNIVERSAL
VESTA • WEDGEWOOD-HOLLY • WELBILT

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Look for this advertisement in the September issues of "Department Store Economist," "Electrical Merchandising," "Heating and Gas Appliance Merchandising," and "Mart," and in the Sept. 9 edition of "Home Furnishings Daily."

The Michigan Consolidated Gas Co. will complete by mid-1962 this new headquarters building in Detroit

THE Gold Star range advertisement, shown on the opposite page, is the third in a series of advertisements which have been published every month this year. The first advertisement introduced the program to range dealers and the two follow-up ads were designed to create enthusiasm and support for the Gold Star Program. Like the first two ads, this advertisement lists the brands or manufacturers that are participating in the program. . . . The A. G. A. Bureau of Statistics estimates that the nation's gas utilities and pipeline companies will spend a record $1,859 million for construction during 1959. The Bureau said that reports from individual companies indicate that plant and facilities expansion will continue to rise steadily to $2,166 million in 1962. Details begin on page 2. . . . Seldom has an A. G. A. convention assembled such a distinguished group of speakers as will be heard in Chicago from Oct. 5-7. The program is now complete and is reviewed in detail on page 3. . . . Across the nation, gas utilities are emphasizing the modernity of gas with the construction of towering headquarters buildings. Eight such buildings are shown on pages 6 and 7. . . . The Arizona Public Service Co. has developed a new type of utility service designed to aid the irrigation farmer. How the company reduces pumping costs in irrigation farming is told on page 12.

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GAS UTILITY AND PIPELINE CONSTRUCTION EXPENDITURES, BY TYPE OF GAS AND TYPE OF FACILITY; 1958-62

(Millions)

TYPE OF GAS AND FACILITY	ACTUAL 1958	FORECAST 1959	1960	1961	1962	TOTAL FORECAST 1959-1962	ACTUAL TOTAL 1955-1958
Natural Gas—Total	$1,566	$1,806	$1,843	$1,915	$2,094	$7,658	$6,003
Production and Storage	214	205	208	166	177	756	791
Transmission	713	807	773	911	1,022	3,513	2,754
Underground Storage	73	115	118	112	123	468	252
Distribution	497	605	670	650	678	2,603	1,945
General	69	74	74	76	94	318	261
All Other Types of Gas—Total	52	53	55	62	72	242	284
Production and Storage	4	5	4	5	13	27	34
Transmission	2	2	2	4	3	11	11
Distribution	44	43	46	50	52	191	223
General	2	3	3	3	4	13	16
Total Industry—Total	1,618	1,859	1,898	1,977	2,166	7,900	6,287
Production and Storage	218	210	212	171	190	783	825
Transmission	715	809	775	915	1,025	3,524	2,765
Underground Storage	73	115	118	112	123	468	251
Distribution	541	648	716	700	730	2,794	2,168
General	71	77	77	79	98	331	278

Gas utilities and pipeline companies will spend an estimated $1,859 million for construction

Record seen for industry's 1959 expansion costs

The nation's gas utilities and pipeline companies will spend a record $1,859 million for construction during 1959, the A. G. A. Bureau of Statistics estimates.

This year's construction expenditures will be 4.9 per cent higher than the industry's all-time peak of $1,772 million set in 1957. They also will exceed 1958's outlays of $1,618 million by 14.9 per cent.

Summarizing its annual survey of gas industry construction expenditures, the Bureau of Statistics said reports from individual companies indicate that outlays for plant and facilities expansion will continue to rise steadily to $2,166 million in 1962.

Construction during the years 1959-62 is expected to cost $7.9 billion, according to current A. G. A. forecasts. This will represent a 25.7 per cent increase over the $6.3 billion spent in the previous four-year period.

A. G. A. also estimates that 33 per cent of the funds necessary for the four-year expansion program will be derived from internal sources. In addition, 46 per cent is expected to come from the sale of bonds and debentures, and 21 per cent from the sale of common and preferred stocks. The Bureau of Statistics points out, however, that the proportions to be raised from security issues depend upon market conditions at time of issuance.

Last year's 8.7 per cent decline in capital spending is attributed to a combination of factors, including reduced industrial demand occasioned by the business recession, a lower rate of new housing completions, and regulatory uncertainties created both by the since-reversed "Memphis

(Continued on page 14)

A.G.A. convention program is ready

One of the most distinguished general sessions programs ever presented at an A. G. A. convention was completed in August, following the announcement that John H. Murrell, George R. Perrine, and Edward A. Norman will deliver major addresses. The 41st annual meeting will be held from Oct. 5-7 at the Conrad Hilton Hotel in Chicago.

Mr. Murrell, president, DeGolyer and MacNaughton, Dallas, Texas, will discuss the gas supply outlook in an address entitled "Plenty for All."

Mr. Perrine, chairman, Illinois Commerce Commission, Chicago, will speak on "New Horizons for Regulation, Too," and Mr. Norman, president, Gas Appliance Manufacturers Association, and president, Norman Products Co., Columbus, Ohio, will give a sales message entitled "To Market, To Market. . . ."

Other general sessions speakers and their topics include United States Secretary of the Interior Fred A. Seaton, "America's Energy Requirements"; Erwin D. Canham, president of the United States Chamber of Commerce and editor, *The Christian Science Monitor,* "The World and National Outlook"; Dr. T. Keith Glennan, administrator of the National Aeronautics and Space Administration, and president on leave from the Case Institute of Technology, "New Horizons for Research"; J. Theodore Wolfe, president of A. G. A. and president, Baltimore Gas and Electric Co., "New Horizons for Growth and Service"; C. O. Nickle of Calgary, Alberta, Canada, publisher of the *Daily Oil Bulletin,* editor of *Oil in Canada,* and governor of the Canadian Petroleum Association, "Canadian Gas Supply Outlook"; and Dr. Ezra Solomon, professor of finance, University of Chicago, "The Fabulous Sixties."

Also appearing during the general sessions will be A. G. A. Treasurer Vincent T. Miles, and Chicago Mayor Richard Daley. Mr. Miles will give the treasurer's report, and Mayor Daley will welcome delegates to Chicago.

George R. Perrine, Illinois Commerce Commission chairman, will speak on regulation

"To Market, To Market . . ." will be the topic of GAMA President Edward A. Norman

Fran Allison of radio and television fame will address the Home Service Breakfast

J. H. Murrell, president, DeGolyer and MacNaughton, speaks on "Plenty for All"

Eskil I. Bjork and J. J. Hedrick, co-chairmen of the General Convention Committee, have promised delegates a "dramatic new look" for the general sessions. Mr. Bjork is chairman and chief executive officer of The Peoples Gas System. Mr. Hedrick is president of The Peoples Gas Light and Coke Co. and vice-chairman of the board of the company's pipeline subsidiaries.

The over-all convention theme will be "New Horizons for Growth And Service," and each general session will have a theme based on "what's ahead" for the gas industry. The Oct. 5 theme will be "New Horizons for Gas Research," the Oct. 6 theme will be "New Horizons for Finance, Legislation, and Management," and the Oct. 7 theme will be "New Horizons for Energy and Supply."

A highlight of the Oct. 6 session will

Chicago's 3,000-room Conrad Hilton Hotel—the world's largest—will be the site of the 41st annual A. G. A. convention to be held Oct. 5-7. A. G. A. has reserved 2,100 rooms

be a 15-minute ceremony in which past A. G. A. presidents will be honored.

A new convention feature will be the General Management Section luncheon, open to all delegates, at noon on Oct. 5. Section Chairman Marvin Chandler, president of Northern Illinois Gas Co., is in charge of arrangements.

The featured speaker will be Dr. John T. Rettaliata, president of Illinois Institute of Technology.

Dr. Rettaliata will describe the role of the Institute of Gas Technology, both in research and as a training ground for gas industry engineers. Mr. Chandler, who will preside, will make some brief introductory remarks regarding the relationship of the Institute of Gas Technology to the gas industry.

As in past years, the final luncheon, open to all convention delegates and ladies, will bring the three-day meeting to a fitting climax. "New Horizons for Sales" will be the theme of the luncheon, and one of America's foremost authorities on ideas and sales power will deliver the featured address. He is G. Herbert True, writer, lecturer, research psychologist and director of creativity research of Visual Research, Inc., Chicago.

Mr. True is currently one of the most popular speakers in the United States. He has been a guest lecturer at 22 major universities and has made creativity presentations to executive meetings throughout the nation.

Hundreds of business and industrial leaders have credited his remarkable presentation with helping them to become "idea inventive," to double the number of their productive ideas, to produce fresh viewpoints, and to understand the creative behavior of themselves and others.

Mr. True's reputation as a "creativity merchant" has earned for him the position of creative behavior consultant to Trans World Airlines, Miles Laboratories, U. S. Air Force, Chemstrand Corp., American Management Association, U. S. Army Command School, and American Institute of Baking.

On the platform he is a bundle of activity. He likes to use charts, graphs, and a modest repertoire of simple magic tricks to put his points across. His presentation at the final luncheon promises to be one of the most thought-provoking, idea-loaded presentations ever offered at an A. G. A. convention.

In the preparation of his material, Mr. True draws upon experience gained while serving as assistant professor of marketing at the University of Notre Dame, as president of a wholesale and mail order firm in South Bend, Ind., as an advertising writer, and as a radio-TV producer-director.

Mr. True has written more than a score of articles and books on various subjects. More than 20 of his articles have appeared in sales and advertising journals alone. His latest book, *The Care and Feeding of Ideas,* was published in 1957.

Mr. True's interest in the stimulation of creativity in the individual stems back to his college days. He conducted creativity research while studying for degrees at the University of Oklahoma (B.A.), Northwestern University (M.S.J.), and the University of Iowa (Ph.D.).

Tickets for the final luncheon will be on sale throughout the convention.

The Home Service Breakfast will be held Tuesday, Oct. 6, at 8 a.m. in the Williford Room of the Conrad Hilton. Tickets should be purchased during registration, or by 2 p.m. on Monday, Oct. 5, at the registration desk.

The afternoon round-table on home service will be held Oct. 5.

Presiding at the Home Service Breakfast will be Miss Lucy Slagle, chairman, A. G. A. Home Service Committee, and home service director, Atlanta Gas Light Co. The featured speaker will be Fran Allison, television and radio personality. Miss Allison is better known as the "Aunt Fanny" of the *Breakfast Club* and as Fran of *Kukla, Fran and Ollie.*

Appearing through the courtesy of Whirlpool Corp., Miss Allison will address the group on "Dramatically Speaking."

Also speaking at the breakfast will be E. Carl Sorby, vice-president, Geo. D. Roper Corp., on the topic "Saluting 25 Breakfasts." A. G. A. President Wolfe will also appear to deliver personal greetings.

The afternoon round-table will be presided over by Miss Slagle.

The first round-table speaker will be Miss Karin L. Morsch, Northern Illinois Gas Co., who will discuss "Penny Flame School Contest." A panel discussing "Play Up the Broiler" will consist of Mrs. Evelyn Kafka, A. G. A. Utilization Bureau; Mrs. Kathryn B. Niles, Poultry and Egg National Board, Chicago; and Miss Slagle.

(Continued on page 16)

Gas adds to building's luxury

Carlton House, an Akron, Ohio, luxury apartment building, will feature gas air conditioning in summer, gas heating in winter. Above is architect's drawing of the $2,000,000 structure

Luxurious interior accommodations and gas air conditioning are being combined to make an Akron, Ohio, apartment house one of the most modern in the country.

The $2,000,000 project will feature what is described as the largest use of individual gas air conditioning units in a single apartment house: 54 three-and-one-half-ton Arkla Servel Sun Valley units and four five-ton models will provide summer cooling and winter heating for the 60-suite building.

Carlton House, now under construction, will have one-, two-, and three-bedroom apartments. Each bedroom will have a full bathroom. Besides a full bathroom, each one-bedroom apartment will have a powder room. Monthly rentals will range from $175 to $650.

The eight-story building is being erected on a seven-acre, wooded site on Akron's west side. The site, which will be landscaped "to provide a park-like setting," is a 10-minute drive from downtown Akron.

The building's exterior, to be made of white glazed brick, will feature banks of gold ceramic veneer-faced balconies —two banks in the front and rear and one on each side—that will serve as architectural focal points. Most of the apartments will have a balcony. Each balcony will have thermopane glass wall units and sliding glass doors opening onto it. The exterior materials, which were chosen for their self-cleaning qualities, will sustain a "new-looking appearance."

Each floor will contain eight suites, and a lower level—below the main lobby—will have an additional four apartments. Two automatic elevators will operate from the lobby.

All kitchens will have automatic dishwashers and built-in gas ranges and ovens. All of the ranges will be equipped with the thermostatically controlled "burner-with-a-brain."

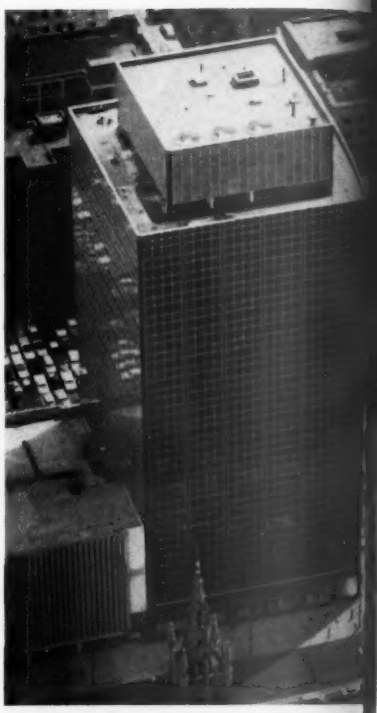
Because the concrete and steel building is of lightweight construction, the designer, Matthew J. Rosenstock, wanted a type of air conditioning installation that would not include large compressors. By selecting gas, he avoided the installation of the heavy cable necessary for the multihorsepower motors needed in other types of air conditioning. Moreover, the gas cooling system permits the incorporation of the piping for heating and cooking.

"The Arkla units, producing heating and cooling from a single unit, were just what we wanted," said Mr. Rosenstock. "They also filled the bill because, with no moving parts, they are vibrationless and will give us the flexibility we want. Each system," he added, "can be controlled from the apartment it is in."

The cooling units will be installed in the utility rooms of the suites. Four

(Continued on page 14)

New gas buildings are monuments to modernity



Towering above city skylines across the nation—from Wilmington, N. C., to Honolulu . . . from Detroit to Amarillo, Texas—are new monuments to the modernity of gas.

There is a nationwide trend in the gas industry toward modernization of old buildings or construction of new office buildings. Some of the buildings already completed or now under construction are shown on these pages.

The Michigan Consolidated Gas Co. (see cover), which expects to complete its new Detroit headquarters by mid-1962, has announced architectural details for its new headquarters, the first skyscraper to be built in Detroit in 30 years.

Ralph T. McElvenny, president of the company, said that the building will be 32 stories (430 feet) high and 124 feet square. It will include 28 floors in the main shaft and a four-story crown. One of the most unusual features of the building will be the six-sided window design, which will eliminate all horizontal lines from the superstructure and emphasize the vertical lines of the supporting columns and window dividers.

Each window will be in the shape of an elongated hexagon, encased in stainless steel frames, 28 inches wide, nine feet long from floor to ceiling, and recessed eight inches from the outer wall. The casement will have a beveled effect both inside and outside.

The new building will serve as headquarters for Michigan Consolidated Gas Co. and its affiliates, Michigan Wisconsin Pipe Line Co. and American Louisiana Pipe Line Co.

Northeastern Ohio residents are buzzing about the public service features of The East Ohio Gas Co.'s new 21-story East Ohio building, the city's newest skyscraper.

Among the features are a new community service room, a vast display area, and 13 all-gas kitchens which are on exhibit to the public in an atmosphere of perfect climate control provided by gas air conditioning. All kitchens are of the latest design, with many different manufacturers represented.

Although East Ohio does not sell appliances, two spacious lobbies displaying the latest gas appliances await visitors. Customers are greeted by soft music and a company representative who demonstrates the gas appliances.

The Pioneer Natural Gas Co. now occupies a new aluminum-paneled general office building in Amarillo. The building is equipped with gas-fired, year-round air conditioning with individual temperature controls in each room. Other special facilities include roof-top parking for employees, electronically controlled passenger elevators, a drive-in cashier window, and hot water coils in the sidewalks.

In Wilmington, N. C., the Tidewater Natural Gas Co. recently opened a new, streamlined office building. The exterior of the building is made of "Armor-Weave," a perforated, expanded aluminum sheet which serves both as a solar screen and as a decorative material.

The highest point in Omaha, Neb., is Northern Natural Gas Co.'s new 15-story office building, completed this year.

(Continued on page 31)

ichigan Consolidated Gas Co. building
bove) features sidewalk reflecting pool

United Gas Corp.'s new office building (above) stands amid trees, green lawns

Honolulu Gas Co.'s headquarters (above) stands as a shrine to Hawaii's gas industry

Ohio Gas Co.'s 21-story building
ft) is Cleveland's new skyscraper

▶

Pioneer Natural Gas Co.'s building (right) is conveniently located in Amarillo, Texas

United Fuel Gas Co.'s large new building (above) rises on rolling, landscaped lawn

Natural Gas Co.'s 15-story build-
) is Omaha's highest structure

▶

Tidewater Natural Gas Co.'s new office (right) features bright aluminum exterior

A.G.A. in Action

Thumbnail sketches of current activities at Association Headquarters and Laboratories

Frank W. Williams

Frank W. Williams, secretary of the **Residential Section,** retired June 15 following 22 years service with the Association. Mr. Williams, who is 55, joined A. G. A. in 1937. He came to the Association from The Brooklyn Union Gas Co., where he was new business representative. He was named assistant secretary of the Residential Section in 1938 and, in 1944, he was appointed secretary. From 1956-58, Mr. Williams also served as secretary of the Gas Industry Development Committee. Shortly before his retirement, Mr. Williams acted as coordinator of the Gold Star program. Known throughout the industry as a "salesman's salesman," Mr. Williams was cited by both utilities and manufacturers on a number of occasions for his "outstanding service to the gas industry." He has moved to Boynton Beach, Fla. He plans to remain active in the gas industry by doing consulting work.

Judges for the third annual **Public Relations Achievement Awards** contest have been named. The industry's outstanding public relations programs will be selected by H. Walton Cloke, president, American Public Relations Association, and public relations coordinator for Kaiser Industries Corp., Washington, D. C.; Carroll R. West, president, Public Relations Society of America, and vice-president and manager of the public relations division of Title Insurance and Trust Co., Los Angeles; and Frank Chapman, publisher of *Gas* magazine, Los Angeles. For the first time, the competition will be conducted in a number of public relations categories. A trophy will be awarded in each category. A larger trophy will be presented to the company judged to have the best program. Awards will be made Oct. 5 at the annual convention in Chicago.

Results of a new industry-sponsored project provide a foundation for the design and development of more efficient gas cleaners for the gas utility and pipeline industry, the **Pipeline Research Committee** reports. Studies were conducted under the **PAR Program** to determine analytical procedures, cleaning efficiencies, oil losses, pressure drops, and dust loading characteristics of six gas cleaning units now on the market. Equipment evaluated included a filter cleaner, a centrifugal separator, and four oil-bath scrubbers. The committee's findings are presented in an A. G. A. report entitled *Performance of Commercial Gas Cleaning Equipment.* Copies are available at $2 each from the Order Department, A. G. A. Headquarters.

A Policy on the Accommodation of Utilities on the National System of Interstate and Defense Highways was adopted recently by the executive committee of the American Association of State Highway Officials. It is expected that the policy will be officially adopted by that association and also by the United States Bureau of Public Roads. The policy is expected to prove workable to the gas industry. Copies of the policy may be obtained from the A. G. A. Order Department.

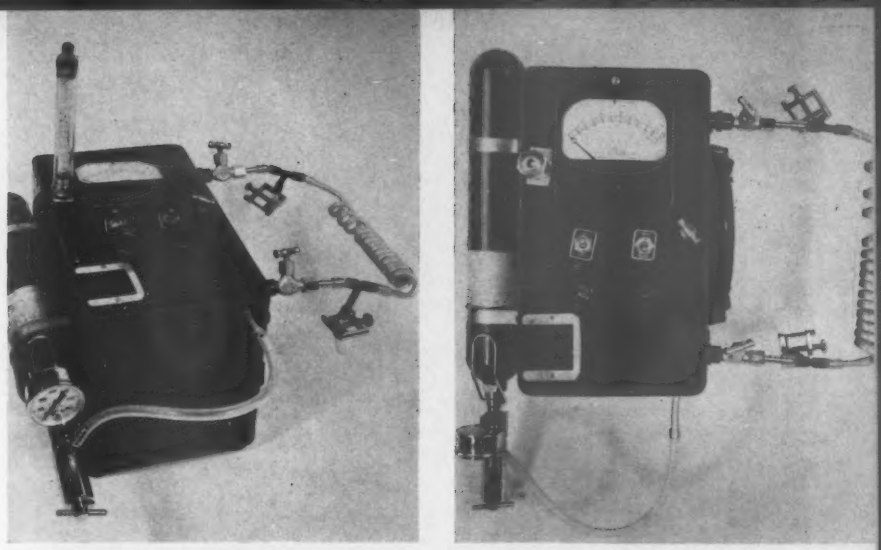
Two national advertisements—for Kleen-King Cleanser and Cal-Fame Frozen Foods—have been filmed in the **Hollywood Bureau's** gas kitchen studio. The frozen food packages were photographed in the freezer compartment of the RCA Whirlpool refrigerator.

Daniel Parson, director, **Bureau of Statistics,** has completed and mailed to members of the Rate Committee his version of *Economics of Natural Gas Production,* a proposed chapter for the *Introduction to Gas Rate Fundamentals.* The *Introduction* will be published by the Rate Committee later this year.

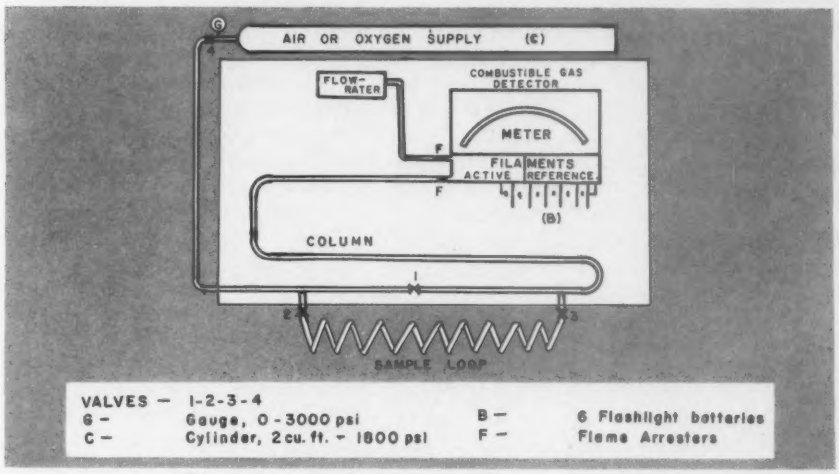
The **Bureau of Statistics** reports that work is nearly complete on the revised projections of annual gas industry operations through 1970 and on the tabulations of gas industry capital appropriations during the first quarter of 1959. The National Industrial Conference Board will use these projections and tabulations in the board's analysis of industry expectations about capital expansion and contraction. The projections also will be included, as a supplement, in *Gas Facts.*

A national Gold Star sales contest, a sound filmstrip, and several new promotional items are being developed by the **Promotion Bureau** to keep interest in the Gold Star program at peak levels. According to present plans, the contest—for dealers, dealer salesmen, and utility company salesmen and sales managers—will offer individual incentive prizes, as well as regional and national awards. The full-color, sound filmstrip is aimed at dealer and utility sales personnel. It is designed to sell them on the benefits of the Gold Star program. New point-of-purchase sales promotion aids—including pennants, streamers, and certificates—are being planned for the fall.

Natural gas can be identified by portable prototype instrument



Two views of a portable prototype instrument, which will aid in the detection of ethane in natural gas, are shown above. Fig. 1 (below) shows device's essential parts and operation principles



Device aids detection of ethane

By A. F. CASCIOLI
Engineer
Consolidated Edison Co. of New York, Inc.

From time to time, a question arises about the necessity of identifying a gas in the field and differentiating it from the gas normally distributed by a utility in the same area.

An excellent tracer component for manufactured gas systems is carbon monoxide, which can be detected in very low concentrations by simple means. A satisfactory tracer in natural gas distribution areas is ethane, which is present in significant concentrations, but is absent from the general run of conflict gases—such as fermentation gases, gasolines, and solvents—that are encountered in the ground and subsurface structures.

In the laboratory, by means of a gas chromatograph, the analysis for ethane in low concentrations is no problem. There may, however, be specific times when the chemical personnel is under pressure to supply a more immediate answer. Moreover, some companies may not believe that expensive chromatographic equipment is warranted on the basis of their distribution experiences.

In order to fulfill a field requirement, an instrument should follow some basic principle specifications. For example, it should be the following:

- Portable, self-contained, and in need of no outside current source.
- Capable of detecting 0.05 per cent by volume of ethane (representing in our system about 1½ to 2 per cent natural gas in air).
- Easy to operate.
- Easy to calibrate.
- Equipped with flame arresters to guard against flame propagation.
- Simply circuited and constructed for easy maintenance and replacement.
- Able to be reproduced.

An instrument has been assembled along these lines and has been field-tested. (Fig. 1 shows the essential constituents of the instrument and the fundamental principles of operation.)

A separation of the pertinent constituents to be detected, in this case methane and ethane, was accomplished through gas chromatography by using a

(Mr. Cascioli was advised in the assembly and testing of the field device by A. R. Belyea, H. Diamond, and John Taggart.)

three-foot silica gel column of one-quarter of one inch O. D. and a carrier gas of oxygen or air. As each component came through the column, it was detected and measured by a sensitive catalytic combustion filament and then read on a microammeter (the Davis M-6 Vapotester) in a Wheatstone bridge circuit.

In order to perform a routine field test, a sampling coil was attched to the inlet of a combustible gas detector of normal issue that was calibrated to read 100 per cent of the lower explosive limit, full-scale, for natural gas. When a reading on the indicator had been established and the presence of a combustible gas had been shown, a sample was trapped in the sampling coil for use as a "slug" for the identification test. The magnitude of the reading was then noted for future comparison and reference.

The carrier gas was passed through the column and detector chamber by opening Valves 1 and 4 and closing Valves 2 and 3 (see Fig. 1). The rate was adjusted to about 100 cc/min by use of the needle valve at the cylinder and the flow meter at the discharge end of the filament chamber. After the zero and voltage were checked, the instrument was ready for the test.

The sampling coil was attached to the appropriate valve nipples, Valves 2 and 3 were opened, and Valve 1 was closed. The carrier gas, which was then passed through the sampling coil, forced the sample "slug" through the column and filament chamber. Methane was eluted first—after some 30 to 40 seconds—and a deflection of the needle was noted. The needle returned to zero after all the methane had passed through.

After about two minutes, any ethane present passed through the column and the deflection and its magnitude were read from the meter. This deflection was considerably smaller, since the ethane concentration in natural gas is only about one-twentieth of the methane. When all the ethane had passed through the column, the meter needle returned to zero.

In order to substantiate detection, the instrument's meter needle must have an upswing and a corresponding downswing to the approximate starting point.

One of three conditions can exist according to the results of the test. These conditions are the following:

- If methane and ethane deflections are noted, natural gas is probably present.
- If methane deflection is noted, but ethane is not, natural gas is probably absent.
- If no deflection appears for either methane or ethane, but a combustible detector reading is obtained, the combustible gases present may be of a higher hydrocarbon nature and may, thus, represent gasoline contamination.

A detection of 0.05 per cent by volume of ethane should suffice for most identifying applications, since that detection will represent about 20 per cent of the lower explosive limit of a natural gas-air mixture. An attempt to pick up much lower concentrations may result in confusion as to whether the combustible gas is of an active nature or is one of past contamination that has already been remedied.

Actual data from the above field test are listed in Table 1. They are compared with a duplicate analysis made in the laboratory with the Vapor Fractometer (gas chromatograph). The tests were based on a field instrument calibrated to read full-scale deflection (0 to 0.1 range) for a 1 per cent by volume ethane in air mixture, voltage across filament 1.5 average, carrier rate at 100 cc/min and a 15-cc cample loop.

The time of elution is a function of length of column and carrier-gas rate. Although the principle of measurement is not critical in regard to temperature and flow with this type of detection, a constant flow rate for the carrier gas will alert the observer about the interim of time necessary for the elution and ultimate meter needle deflections.

The carrier gas supply will last for about 10 hours of operation at this rate. With the present circuity, however, the voltage drain may require battery replacement more frequently than the normal combustible gas detector. Experience indicated that the calibration should be relatively stable and that it requires checking at monthly intervals.

The Davis Emergency Equipment Co., Newark, N. J., is presently preparing to market a portable device patterned after both the test model and its own chromatograph.

Leak surveys and the follow-ups of leak complaints present problems requiring broad experience and proper instrumentation. At times, the detection of high concentrations of combustible gases, in combination with familiar odor characteristics of the normal gases encountered, automatically ascertains both the identity of a gas and its utlimate source.

In questionable cases, however, an instrument such as the field device described above can both assist in the field and permit a more equitable disposition of manpower. Nevertheless, this instrument is not intended as a cure-all. A complete analysis of any questionable gas should always be made in the laboratory by an accurate and recognized piece of equipment, so that a permanent record of an opinion can be substantiated and insurance can be provided for any litigation.

TABLE 1

Location:—	1	2	3	4	5
FIELD INSTRUMENT					
Methane	Off scale	Off scale	Off scale	Off scale	Off scale
Ethane: per cent deflection	5	8	0.0	8	10
estimated per cent by volume	0.05	0.08	0.0	.08	0.10
VAPOR FRACTOMETER					
Methane	6.10	11.25	2.25	2.15	4.05
Ethane	0.05	0.10	0.00	0.10	0.10
Carbon dioxide	1.20	2.15	1.50	1.05	5.15
Nitrogen and oxygen	92.65	86.50	96.25	96.70	90.70

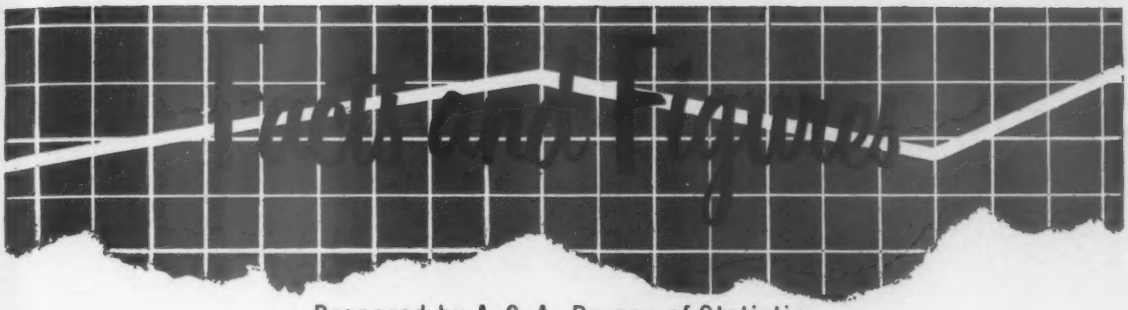
Nine homeowners refuse electric street lights, install gas lamps

NINE RESIDENTS of Dean Lane in Grosse Pointe Farms, Mich., recently protested the installation of electric street lights in front of their homes and drew up a petition calling for gas lights instead.

Terming the electric lights "too harsh and bright," the homeowners proposed the installation of nine individual gas lights at their own expense. The proposal was presented to —and subsequently approved by—the Grosse Pointe Farms City Council.

The homeowners called upon Michigan Consolidated Gas Co. to install the lights.

The lighting of the lane was celebrated with the help of Andy Hengsteback, one of the last of the old-time lamplighters, who came out of retirement for the occasion. Fred A. Kaiser, vice-president and general sales manager of Michigan Consolidated Gas, cooperated with the nine residents in planning the lighting ceremonies.



Prepared by A.G.A. Bureau of Statistics

Construction expenditures by the gas utility and pipeline industry during the first quarter of 1959 have been estimated at $361 million, a figure 41.6 per cent higher than the $255 million spent in the first quarter of 1958.

A preliminary estimate of the expenditures in the second quarter of 1959 is $512 million, a figure 41.8 per cent higher than the total expenditures in both the first quarter of 1959 and the second quarter of 1958.

Construction expenditures for 1959 are expected to total a record $1,859 million.

Information on past and anticipated construction expenditures is supplied regularly to the Securities and Exchange Commission by gas utility and pipeline companies with securities held by the public. Summaries of this information by the commission have been adjusted to provide an indication of quarterly construction expenditures by the entire gas industry.

Total operating revenues of the gas utility and pipeline industry amounted to $7,352 million for the 12 months ended March 31, 1959. This figure was $670 million, or 10 per cent, higher than the total for the 12 months ended March 31, 1958. Operating expenses rose $428 million, or 9.4 per cent, from the March 31, 1958, figure to a total of $4,973 million. An increase of $29 million in total income deductions, including interest on long-term debts, was partially offset by a $7 million gain in other income. Net income for the period ended in 1959 was $79 million, or 12 per cent, higher than the total for the period ended in 1958.

The Department of Commerce reported that private housing starts in June 1959 rose to a seasonally adjusted annual rate of 1,370,000 from a 1,340,000 rate in May. By the end of June, a

(Continued on page 35)

SALES OF GAS AND ELECTRIC RESIDENTIAL APPLIANCES DURING JUNE 1959

(WITH PER CENT CHANGES FROM THE CORRESPONDING PERIOD OF THE PRIOR YEAR)

	June		May		First Five Months of 1959	
	Units	Per Cent Change	Units	Per Cent Change	Units	Per Cent Change
RANGES (including built-ins)						
Gas	167,300	+ 7.4	161,300	+ 9.6	800,900	+13.3
Electric	n.a.	n.a.	133,400	+39.0	697,500	+32.3
WATER HEATERS						
Gas	235,400	+ 1.9	239,600	+14.1	1,292,700	+17.0
Electric	n.a.	n.a.	72,300	+ 9.4	356,600	+10.4
GAS HEATING—Total	116,700	+28.0	90,200	+20.9	413,100	+29.5
Furnaces	90,400	+26.6	74,400	+31.0	343,200	+37.9
Boilers	13,300	+37.1	8,400	+ 6.3	36,600	+16.6
Conversion Burners	13,000	+28.7	7,400	−25.3	33,300	−14.2
OIL-FIRED BURNER INSTALLATIONS	44,310	+36.8	45,100	+36.6	204,960	+10.7
DRYERS						
Gas	n.a.	n.a.	14,590	+ 9.0	144,640	+51.4
Electric	n.a.	n.a.	31,320	+ 9.8	291,950	+23.3

Source: Gas Appliance Manufacturer's Association, National Electrical Manufacturer's Association, "Fuel Oil and Oil Heat," and American Home Laundry Manufacturer's Association.

GAS SALES TO ULTIMATE CONSUMERS BY UTILITIES AND PIPELINES DURING MAY

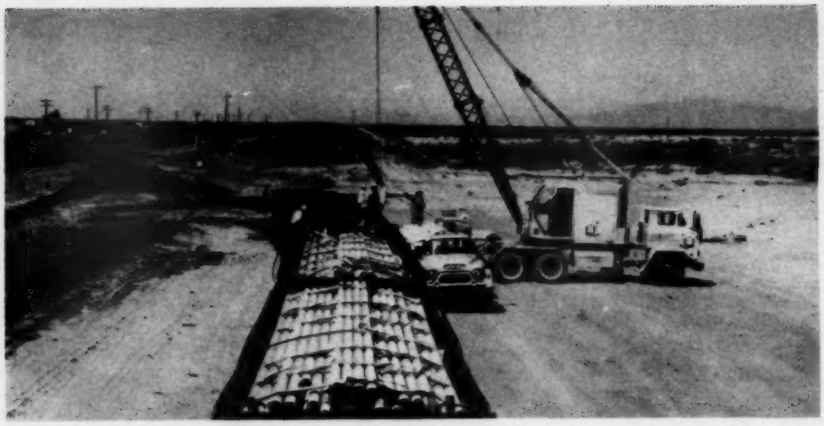
(MILLIONS OF THERMS)

	1959	1958	Per Cent Change
Month of May			
All types of Gas	6,583.2	5,822.8	+13.1
Natural Gas	6,422.7	5,653.2	+13.6
Other Gases	160.5	169.6	− 5.4
Twelve Months Ended May 31			
All types of Gas	83,295.3	79,061.3	+ 5.4
Natural Gas	80,864.4	76,643.0	+ 5.5
Other Gases	2,430.9	2,418.3	+ 0.5
May Index of Monthly Utility Gas Sales (1947-49 = 100)	256.0	226.4	+13.1

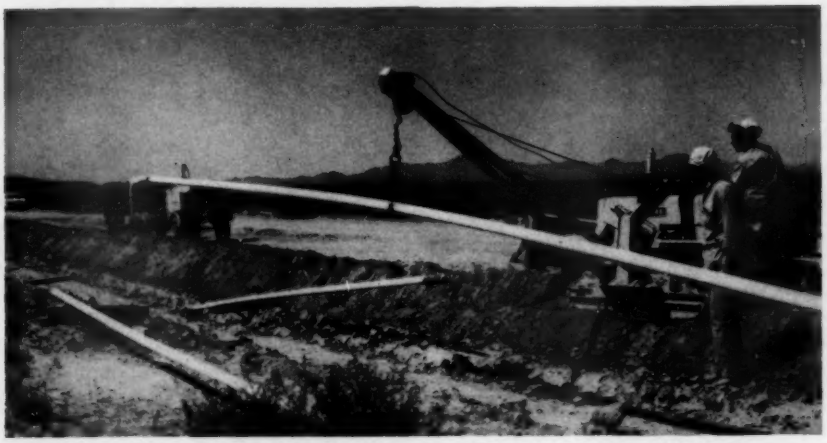
PERTINENT BUSINESS INDICATORS, MAY

(WITH PER CENT CHANGES FROM CORRESPONDING PERIOD OF THE PRIOR YEAR)

	May			April		
	1959	1958	Per Cent Change	1959	1958	Per Cent Change
Industrial activity (1947-49 = 100)	152	128	+18.8	150	126	+19.0
Consumer prices (1947-49 = 100)	124.0	123.6	+ 0.3	123.9	123.5	+ 0.3
Housing starts, Non-farm (thousands)	134.0	108.5	+23.5	137.0	99.1	+38.2
New private construction-expenditures ($ million)	3,160	2,752	+14.8	2,918	2,551	+14.4
Construction costs (1947-49 = 100)	175.5	167.2	+ 5.0	174.5	165.9	+ 5.2



A trainload of plastic-coated pipe is delivered to Arizona Public Service Co.'s railhead at Aguila, Ariz. The pipe will be laid as a distribution main and used in the pumping program



Contractors lay the first distribution mains—made of plastic-coated pipe—that will serve natural gas to engines which will be installed and maintained by Arizona Public Service Co.

Plastic-coated pipe is unloaded at a r , Ariz., bution system that will serve the Ariz in

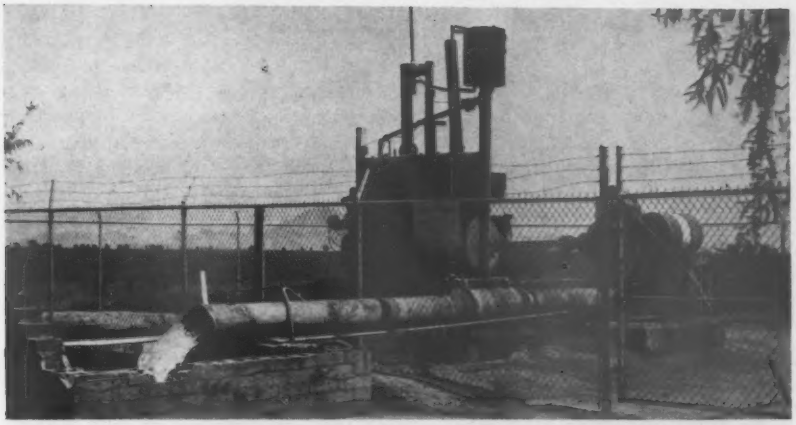
Arizona Public Service Co. offers 'economical, trouble-free method of irrigation pumping' by use of natural gas engines

Irrigation farmer aided by new utility service

A new type of utility service designed to reduce substantially the water-pumping costs for Arizona's irrigation farmers has been announced by Arizona Public Service Co. Rate schedules for the service have already been filed with the Arizona Corporation Commission.

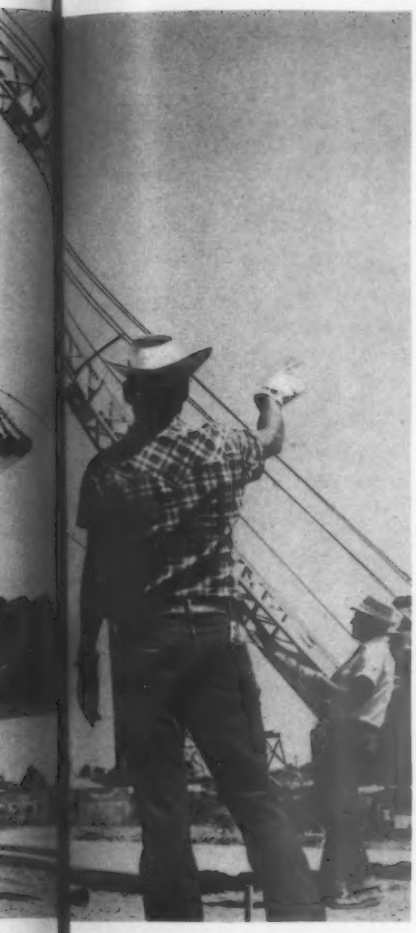
According to Walter T. Lucking, president of Arizona Public Service, the company is "offering a most economical, trouble-free method of irrigation pumping, by the use of natural gas engines, which will afford average savings of nearly 11 per cent in pumping power costs."

The proposed program will relieve the farmer of the financial burden of owning, servicing, and maintaining pump-driving equipment. The company will furnish a gas engine, gearhead, and



This natural gas engine owned by a farmer is now on Arizona Public Service Co.'s lines. It is one of an ever-increasing number of engines receiving power for irrigation pumping

First gas engine in the utility's pumping program is inspected by (l. to r.) Emiel Kruse and Dale Cahill, farm owners, and Earl Jorgensen and Bill Martin, company executives



Ariz., to await incorporation into distri-
s in Harquahala and Rainbow valleys

all other accessories; will maintain, service, and operate this equipment for the farmer; and will sell the energy actually delivered to the pump shaft. The company says that the complete service will cost the farmer less than he is now paying for the electrical energy that operates his pumping installation.

Mr. Lucking points out two advantages of this service to the farmer: the reduced cost of energy to pump water on to the land and the elimination of much of the investment the farmer must now make for pumping equipment.

If it is approved by the corporation commission, the utility's service will be offered initially in three areas. They are the Harquahala Valley, Rainbow Valley, and Aguila agricultural areas of the company's Western and Wickenburg divisions. The service would be available to owners of irrigation pumping installations in excess of 50 horsepower.

Arizona Public Service has been making intensive studies and evaluations of Arizona's agricultural economy for several years. The company presently provides natural gas to 225 pumps which serve more than 40,000 acres. These pumps, however, are owned and maintained by individual farmers.

Mr. Lucking says that the program will be put into effect area by area throughout the company's service territory as rapidly as plans can be developed and equipment obtained. It might be two years before the program is fully available and operative throughout the entire territory, he notes.

Under the program, the farmer would buy energy at an average price equivalent to 8.6 mills per kilowatt-hour, a figure less than the present cost at the meter where electrically driven pumps are used. The price is based on an average of 4,000 pumping hours annually. The actual cost would vary according to the use of each pump.

In a related development, the company has revised its extension policy, under which new lines are built, in order to serve better the farmer who prefers to own his own gas engine.

Arizona Public Service has as its customers more than half of the farmers in the state. It provides energy for 1,950 of the state's 6,000 irrigations pumping installations, thus servicing 430,000 of the state's 1,240,000 irrigated acres.

Construction expenditures

(Continued from page 2)

Decision" and by the confusion and delays surrounding federal regulation of independent gas producers.

The Association adds that it has substantial evidence indicating reductions in capital outlays last year largely represented postponements rather than cancellations of construction projects.

The gas industry's extension of transmission systems accounted for the largest share of last year's construction expenditures, with outlays totaling $715 million. Among the major projects launched in 1958 was the $160 million Texas-Florida pipeline, completed in mid-1959 by Coastal Transmission Corp. and Houston, Texas, Oil and Gas Corp.

Transmission construction is expected to increase to $809 million this year and $1,025 million in 1962. For the four years ending in 1962, these outlays will total $3.5 billion, up 27.5 per cent from the $2.8 billion spent in 1955-58.

Expenditures for construction of distribution facilities are expected to reach a record $648 million this year, up 9.3 per cent from the peak of $593 million established in 1957, and to climb to $730 million in 1962. Distribution companies spent $541 million for construction during 1958.

Total distribution expenditures of $2.8 billion for the years 1959 through 1962 will be 28.9 per cent higher than the 1955-58 total of $2.2 billion.

Production and storage construction by pipeline companies and distributors, which cost $291 million last year, will amount to an estimated $325 million during 1959. Approximately $115 million of this will be spent for underground storage. Forecasts indicate that underground storage spending alone will total $468 million during the four years ending in 1962. This will be an 86.5 per cent increase over the $251 million spent in 1955-58.

The report also shows that the industry used 2.003 thousand tons of steel pipe during 1958. Pipe of 16 inches diameter or larger accounted for 1,334 thousand tons, or 66.4 per cent of the total.

A. G. A.'s materials consumption data, gathered biennially with the general construction information, indicates that while steel pipe use last year climbed 38 per cent above the 1956 level, industry use of cast iron, copper and aluminum was somewhat below 1956.

The total utility plant of the gas industry advanced to a new high of $18.07 billion, up 8.3 per cent from the 1957 level of $16.69 billion. Total assets had increased to $21.4 billion by the end of 1958, up from $19.76 billion in 1957.

STEEL AND OTHER METALS USED BY THE GAS UTILITY AND PIPELINE INDUSTRY, 1958-62

	ACTUAL	FORECAST			
	1958	1959	1960	1961	1962
Steel, Total (000 Tons)	2,008	1,983	2,589	2,324	2,100
Pipe, Total	2,003	1,978	2,582	2,316	2,090
Pipe under 6"	277	316	395	529	586
Pipe 6"-14"	392	389	478	554	552
Pipe 16" and over	1,334	1,273	1,709	1,233	952
Other Steel	5	5	7	8	10
Cast Iron (000 Tons)	42	45	54	72	83
Copper (Tons)	1,264	1,471	2,084	2,777	3,222
Aluminum (Tons)	42	48	54	67	79

Utility cools with gas-powered water chiller

A WATER-CHILLING MACHINE powered by natural gas is air conditioning the display areas in Milwaukee Gas Light Co.'s main office building.

The centrifugal cooling unit is driven by a piston engine which uses natural gas, instead of by an electric motor or steam turbine. Bruce A. McCandless, vice-president of sales for the company, said the unit "is one of the first installations of its type in the nation."

The machine, which was installed to dramatize gas as an energy source, operates at a cost that compares favorably with the costs of other types of systems. Mr. McCandless points out that at six cents per therm—the company's rate for gas used for cooling—the engine's operating cost equals the amount that would be charged for electricity if electricity could be purchased at less than one cent per kilowatt hour.

The cooling system makes use of a standard Carrier centrifugal compressor, condenser, and cooler with interconnecting piping of 150 tons cooling capacity.

Ohio apartment house

(Continued from page 5)

small water towers, located on the roof, will provide condensing water—which will be constantly recirculated—for the system.

Carlton House will also use gas to heat its one-story garage, which will contain stalls for 72 cars. The garage will be adjacent to the rear of the apartment building. In addition, there will be space for 47 automobiles on the garage's roof. Service and guest parking for 40 more vehicles will be provided in a paved area on the side of the building.

Gas cooling use grows

The incorporation of gas-fueled heating and cooling in Carlton House is another milestone in the growth of the use of gas air conditioning in the northeastern Ohio area served by The East Ohio Gas Co. More than 150 homes and 130 commercial buildings in this area already have such gas systems, according to the utility.

Included among these installations are the 850-ton system in the new May Co. department store in University Heights, the 1,200 tons in The East Ohio Building in Cleveland, the 560 tons in the Wm. Taylor Son and Co. department store in Maple Heights, and the 372 tons in Lutheran Hospital in Cleveland.

Industrial relations round-table

Prepared by
A. G. A. Personnel Committee

Edited by W. T. Simmons
Assistant Personnel Manager
Philadelphia Electric Co.

● **Cure for absence:** spread the responsibility—"John Doe won't be in," says the voice from the personnel department. "His wife just called to say he is sick."

Every supervisor knows there is a good chance that John is not sick. But that does not solve the problem of how to do the work for which John is needed.

According to the American Medical Association, the trouble may be that John does not know he is needed: that is, he does not feel he has enough responsibility. The *AMA Journal* cites a study which showed that only 35 per cent of a group of employees with more than four absences during a six-month period felt they had enough responsibility in their jobs. Of the employees with only one absence during the six months, 65 per cent felt they did have enough responsibility.

There is plenty of room for other absence influences in these statistics; the feeling of too little responsibility, however, emerges as one outstanding cause of our vacant desks and machines.

● **Regimented thinkers**—Is your company full of conformists? If so, do not expect creative ideas from them. Moreover, do not mistake the conformity straitjacket for loyalty," says Dorwin Cartwright, the University of Michigan's group dynamics research director, who, in a speech before the American Public Health Association, listed several creativity sicknesses and cures:

1. Underconfident employees: In fostering greater self-confidence, the manager strikes a blow for creativity, too. Employees should be helped to feel capable. Mistakes should be criticized privately and constructively. Specializations should be recognized as an asset to the company.

2. Insecure group members: One of the strongest pressures against being different in a group is the fear of rejection. A person who feels 'on trial' seldom feels free to appear unconventional or controversial. An organization whose members do not feel secure in their membership is not likely to generate many creative or original ideas.

3. Uniform background and training: Originality is more common where people of different backgrounds, training, and orientation are thrown together. However, the natural tendency of a company is to add to the staff new people who are congenial to the old and who approach problems in a similar way. To prevent the deadening effect of everyone's thinking alike, select new people who are different.

4. Cloistered loyalties: The best guarantee that an organization will remain both flexible and productive of original ideas is the knowledge that its members have outside loyalties, such as to professional societies and business groups. Multiple loyalties often create conflicts within an organization and tensions within an individual—but it is out of such conflicts and tensions that new procedures and organizational growth frequently develop.

● **Faded promises**—"My first job was not what the recruiter said it would be," said 20 per cent of 1,300 surveyed engineers in a report by J. D. Staley of the American Management Association to the American Society of Mechanical Engineers. The complaining engineers found themselves with checking, graphing, and filing jobs that "their Aunt Minnie could do"; the experienced, senior scientists with whom they were to work were nowhere in sight; and the lavish personal touch of the recruiting effort gave way to an impersonal work atmosphere.

Engineers—and other employees—resent being assigned to jobs that are considerably beneath their ability. Such assignments are signs of poor recognition.

It is fine to hire young professionals to do routine work while they learn about the organization; but it is not fair to mislead the young professional during the recruiting process.

● **People under pressure**—It is easy to be cynical about books on "how to be happy." We, however, do not share this sophisticated contempt. We believe that personal anxieties are not restricted to "Class D" housewives and teen-age girls, and that senior business and professional men, too, sometimes find life difficult to face and need help in coming to terms.

There are no magical remedies or short cuts, but a recent book (*For People Under Pressure*, by Dr. David Harold Fink) does succeed in placing the following signposts on the long road to self-help:

1. On understanding yourself: Identify the things you do that cause you unhappiness, and ask yourself what needs you are trying to satisfy. When you have found the clue, the ghost will have been laid and you will be happier because of self-knowledge.

2. On winning friendships: Being liked requires effort on your part. To make yourself interesting to others, first learn to be interested in them.

3. On making profitable decisions: Acting hastily is the enemy of all right decisions. Learn to tolerate frustration and give yourself time to think.

● **Arbitration decisions: good faith reorganization of storeroom upheld by arbiter**—A grievance by the International Chemical Workers Union stated that Monsanto Chemical Co., Monsanto, Ill., had violated a contract by reorganizing its stores department and engaging salaried IBM machine operators to work where, formerly, hourly, union-represented help was employed. The grievance was rejected by an arbitrator, who found that under the contract the union did not have a grievance.

The reorganization of the stores department and the reclassification of jobs, necessary to the conversion of the department from manual to machine operation, produced a saving of time for management and permitted the use of the IBM machines for other operations during at least 75 per cent of the time.

The union said that it had no objection to increased efficiency and progress, but that it did not propose to stand idly by and permit salaried employees to do the work of hourly-paid employees under the pretext of progress.

Arbiter Raymond S. Roberts, while expressing sympathy for the union's concern, said that this situation is one which the union can remedy only by negotiation, not by arbitration.

The company contended that the reorganization of the storeroom did not violate the contract. Its position, as summarized in the arbiter's decision, was that the IBM machine operation is entirely different from the old storeroom operation and, because of the confidential nature of the new work, salaried employees are necessary.

In June 1956, the company gave notice to the union of its intention to reorganize the storeroom and outlined the classifications which would be retained. The reorganization meant cutting out seven hourly-paid employees, who were subsequently absorbed at other points in the plant. At that time, there was company-union discussion of the contemplated reorganization; and, in August 1956, the company notified the union of its final plan. Some of the work in the reorganized storeroom was to be done by hourly-paid employees; most of it, however, was to be done by salaried employees in the company office. Arbiter Roberts said:

> Under the new method with the IBM machines, the company maintains that 80 per cent of the time the machines are devoted to confidential accounting work, and that trained, experienced personnel are required to operate the machines. The company produced evidence to indicate that the processing of an average of 600 requisitions and receipts daily took approximately 40 man-hours of labor under the old method, and that under the new method 35 man-hours per day have been eliminated. It was pointed out that hand methods were

(Continued on page 25)

Convention

(Continued from page 4)

Mrs. Shirley B. McGillicuddy, Southern Counties Gas Co., will then discuss "Dealer Promotions by Home Service," and the session will close with a talk by Mrs. Elsie M. Alcorn, Milwaukee Gas Light Co., entitled "What's New for Display Kitchens."

Ten New Freedom Gas Kitchens and Laundries, designed by the following magazines and manufacturers, will be displayed:

American Home, Toledo Desk and Fixture Corp.; *Better Homes and Gardens,* Fashionwood Kitchens; *Bride and Home,* Youngstown Kitchens; *Everywoman's Family Circle,* The I-XL Furniture Co.; *Good Housekeeping,* Whirlpool Corp.; *House and Garden,* St. Charles Manufacturing Co.; *New Homes Guide,* Geneva Modern Kitchens; and *Living for Young Homemakers,* Nevamar Carefree Kitchens. In addition, Whirlpool Corp. will exhibit its "Mrs. America" kitchen. Mrs. Margaret Priebe, Mrs. America of 1960, will be on hand to help demonstrate the kitchen.

The Accounting Section will meet Tuesday afternoon, beginning with a luncheon at 12:30 p.m. Section Chairman J. Gordon Ross, Rochester Gas and Electric Corp., will preside.

The presentation of the Order of Accounting Merit awards by Mr. Wolfe will be one of the highlights of the Section meeting.

Later, Mr. Ross will deliver the annual "Chairman's Report," a roundup of Section accomplishments during the past year.

D. W. Peterson, Minneapolis Gas Co., will then give the report of the Nominating Committee. This will be followed by election of officers. At this point, the newly elected chairman will take over for the balance of the program.

The incoming chairman will introduce three speakers who will address the Section. They are A. C. Colbert, chairman, NARUC Committee on Accounts and Statistics, Public Service Commission of Wisconsin, Madison; Allan G. Mitchell, comptroller, Philadelphia Electric Co.; and O. K. Boyd, assistant vice-president, Baltimore Gas and Electric Co.

Mr. Colbert will discuss "Activities of the NARUC Accounting Committee," Mr. Mitchell's topic will be "Problems Facing Finance and Accounting Management," and Mr. Boyd will report on "Fantastic Figures of the Future."

The General Management Section, in addition to the Monday luncheon, which is open to all delegates, will hold a special session following the luncheon. Mr. Chandler will preside at the afternoon meeting, which will get underway at 3 p.m.

Highlight of the session is expected to be the presentation of the A. G. A. Public Relations Achievement Awards and the Safety Achievement Awards.

Election of Section officers and also of the 1960 Nominating Committee will follow.

A sales session sponsored jointly by the Industrial and Commercial Section and the Residential Section will be held Oct. 6, beginning at 2 p.m. The presiding chairmen will be F. Thompson Brooks, Industrial and Commercial Section chairman, and Thomas H. Evans, Residential Section chairman.

Mr. Brooks is sales manager, industrial sales department, Philadelphia Electric Co.; Mr. Evans is vice-president, Carnegie Natural Gas Co., Pittsburgh, Pa.

Following opening remarks by both chairmen, a report of the nominating committee of each section will be made. Roy E. Wright, director, gas and electric sales, NEGEA Service Corp., is chairman of the Industrial and Commercial Section Nominating Committee. A. G. Bur, vice-president-sales, Wisconsin Public Service Corp., heads the Nominating Committee for the Residential Section.

Following election of officers for each section, Mr. Wolfe will present the Industrial and Commercial Achievement Award sponsored by Moore Publishing Co. and the annual Home Service Award given by *McCall's* magazine.

Speakers to address the joint session are Edward J. Kneeland, consultant-community and business relations service, General Electric Co., and Lester T. Potter, president, Lone Star Gas Co.

Mr. Kneeland will discuss "Building A Better Business Climate." Mr. Potter, who is A. G. A. second vice-president and first vice-president-elect, will describe "The Sizzling Sixties—A Decade of Challenge."

The combined session will be concluded with an entertaining sales presentation by Caloric Appliance Corp. (See Residential Section feature, pages 32-33.)

The Operating Section will meet Oct. 5. H. C. Jones, Section chairman, will preside, and will present the "Report of Section Activities."

V. F. Bittner, chairman of the Section Nominating Committee, will give

A. G. A. honors Manufacturers Light and Heat

A. G. A. has awarded a merit certificate to the gas measurement department of The Manufacturers Light and Heat Co. for its safety record of one million man-hours without a disabling injury. The record extended from Dec. 16, 1949, to May 11, 1959. Representatives of the company who accepted the award were (l. to r.) A. B. Cimino, measurement area supervisor; M. A. Paul, meter shop foreman; H. V. Roberts, assistant supervisor, gas measurement-field; A. C. Myers, measurement area supervisor; A. R. Kelliher, safety director; W. M. Meese, measurement area supervisor; R. W. Welch, supervisor, gas measurement; and R. J. Boyd and E. G. Cook, measurement area supervisors

the committee report. This will be followed by the election of Section officers.

After the presentation of Operating Section awards by A. G. A. President Wolfe, five past presidents of A. G. A. will form a "President's Panel" to discuss "New Horizons for the Operating Man."

Everett J. Boothby, chairman of the board, Washington Gas Light Co., will serve as moderator. Two of four panel members had been named as this issue went to press. They are C. H. Zachry, president, Southern Union Gas Co., and Dean H. Mitchell, president, Northern Indiana Public Service Co.

Among the innovations at the October convention will be a 10-acre outdoor exhibit of heavy-duty mobile equipment and an A. G. A. research exhibit which will show how the PAR program is opening new horizons for gas.

The research exhibit will feature several prototype devices such as the model gas forced-air furnace which generates its own circulating fan electricity by the thermoelectric principle.

The outdoor exhibit, sponsored by the Operating Section and called "New Tools for Growth and Service," is open to all delegates. It will feature the newest, most advanced types of equipment used in the construction, operation, and maintenance of gas industry facilities.

The exhibit will be open throughout the convention, but special demonstrations have been arranged for the afternoon of Oct. 6. Chartered buses will transport delegates from downtown Chicago to the exhibition area.

The exhibit will be limited to self-powered, self-contained mobile equipment, such as trucks, trailers, and tractors; hoists, lifts, and cranes; derricks and drilling rigs; backhoes, loaders, and earth movers; portable compressors and generators; and hydraulic hammers.

For the entertainment of delegates and ladies, the President's Reception and Dance will be held Monday evening, Oct. 5, in the Grand Ballroom at the Conrad Hilton. Following the salute to President Wolfe, dancing will be from 8:30 p.m. to 1:00 a.m. to one of America's favorite orchestras. There will be table service for your pleasure.

The Ladies Luncheon and Style Show will be held on the Terrace-Casino in the Morrison Hotel. This year's style show will be called "See America First in Fashion, U.S.A." All 50 states will be represented in a salute to America's designers.

Roy E. Jones, president, North Shore Gas Co., is chairman of the Convention Entertainment Committee.

A daily newspaper covering convention events and news will be published by *Gas* magazine on Monday, Tuesday and Wednesday mornings and will be available at the registration desk. Periodic five-minute broadcasts of national, local and convention news will be made over the public address system in the Conrad Hilton Hotel drawn from the "Convention Daily" news room.

An official theme song, to the tune of *Home on the Range,* has been written for the convention.

While in Chicago, delegates will be

(Continued on page 18)

Accident experience during first half of 1959 near record low

Reports received from a sample of 84 companies indicate that the accident experience of the gas utility and pipeline industry may achieve another record low in both the frequency and severity rates.

The sample, representing 39 per cent of the industry's total employees, indicates a frequency rate of 7.09 disabling injuries per million man-hours worked during the first half of 1959. This rate is 12.1 per cent lower than the 1958 annual rate of 8.07.

The severity rate in the 1959 period dropped 47.6 per cent from the 1958 annual rate of 683 days lost per million man-hours of exposure to 358 days.

Vehicle accident statistics for the first half of 1959 were furnished by 69 of the 84 sample companies. These 69, which represent 36 per cent of the industry's total employees, operated some 21,478 vehicles which traveled more than 114 million miles.

The number of reportable vehicle accidents as of June 30, 1959, aggregated 1,714, or 1.50 accidents per 100,000 miles traveled. This rate is 12.8 per cent higher than the 1958 annual rate of 1.33 accidents per 100,000 miles traveled.

GAS EMPLOYEE ACCIDENT EXPERIENCE
DURING THE FIRST HALF OF 1959

	1958	1959		
	Annual	First Quarter (Sample)	Second Quarter (Sample)	First and Second Quarter Total
Number of reporting companies	516	84	84	84
Average number of active employees	193,748	75,125	76,644	*75,885
Number of injuries				
Fatality	26	2	1	3
Permanent total disability	1	0	0	0
Permanent partial disability	104	2	3	5
Temporary total disability	3,037	265	267	532
Total	3,168	269	271	540
Days charged				
Fatality	156,000	12,000	6,000	18,000
Permanent total disability	6,000	0	0	0
Permanent partial disability	51,346	274	524	798
Temporary total disability	54,819	4,254	4,214	8,468
Total	268,165	16,528	10,738	27,266
Frequency Rate	8.07	7.18	6.99	7.09
Severity Rate	683	441	277	358
Vehicle accident statistics				
Average number of employees	152,749	69,745	71,250	*70,498
Number of vehicles	41,392	22,506	20,450	*21,478
Vehicle miles traveled (000)	507,675	52,806	61,576	114,382
Number of reportable accidents	6,732	955	759	1,714
Number of personal injuries	226	29	33	62
Accidents per 100,000 miles traveled	1.33	1.81	1.23	1.50

* Average of first and second quarters.

invited to visit the facilities of one of the nation's largest integrated natural gas systems. The Peoples Gas Light and Coke Co., which provides natural gas service to Chicago, is the parent company of the system.

Peoples Gas' headquarters are at 122 South Michigan Avenue. The main floor is handsomely decorated with kitchen appliance displays.

Peoples Gas executives also will ask delegates to visit the company's natural gas exhibit at the Chicago Museum of Science and Industry.

Delegates also will be invited to visit the Institute of Gas Technology, located at 17 West 34 Street in Chicago.

One reason that a large convention attendance is expected this year is that Chicago is ideally located in the nation's center, in respect to all forms of transportation. It is also the hub of major commerce and industry.

Delegates seeking additional entertainment will have their choice of headline athletic events, top-rated nightclubs, and a number of excellent museums, art galleries, and cultural institutions. The "host city of the nation" is also widely known as a fine food center.

No matter what your tastes, you will find in Chicago the very best in hospitality.

Meet your Association staff

Hayes S. Walter

The trek from his cow-punching, sheep-herding days in western Colorado to his post as A. G. A. commercial promotion manager was quite a trail for Hayes S. Walter, the son of a Colorado mountain guide and gold mining prospector.

Hayes cut his teeth in a tough Colorado mining town where his family spent most of his early years "hoping that Dad would make that one big strike." The "big one" never was found, but his father did strike one vein that temporarily sent the family's hopes soaring.

To supplement the family income, Hayes learned early to punch cows, herd sheep, and do general ranch work. For a year between high school and college, he worked on a fruit-picking circuit.

All of this was enough to make Hayes believe that Horace Greeley's "Go West . . ." advice needed some re-evaluation. As a result, Hayes received a "$5 grant" from his father and enrolled at Colorado College, where he spent the next four years majoring in business administration.

To earn room, board, and tuition, Hayes performed a number of jobs, including firing furnaces, working as a "bus boy" in the college cafeteria, ushering in a local theater, and dusting books in the college library, where he did his studying. He recalls that during his dusting hours, he would hide behind the shelves to study and, when the librarian approached, quickly begin dusting his text books.

Hayes' interest in promotional work can be dated to his final two years of college, when he managed the college newspaper and yearbook.

After college, his first job was that of a salesman for a Colorado Springs advertising agency. In 1928, he became advertising manager for the Nicholas Beazley Co. in Marshall, Mo., a flying school and aircraft manufacturing company.

In 1930, Hayes was named sales manager of Universal Aviation Co., St. Louis, where he specialized in selling surplus World War I airplanes.

His first taste of commercial cooking came when he worked with a mail order house that sold popcorn machines and commercial cooking equipment.

During World War II, he formed his own company to sell gardening equipment. He says that the United States government was his biggest customer. Like the fellow who sold refrigerators to the Eskimos, Hayes proved his own superior salesmanship by selling to the Army a large order of hand and power mowers for use in Greenland.

In 1948, Hayes became a partner in the Walter and Carrell Manufacturing Co. of Denver, a firm that made commercial cooking equipment. In 1951, he joined A. G. A. as commercial promotion manager.

At A. G. A., Hayes is in charge of commercial promotion programs in such areas as commercial cooking, water heating, incineration, and air conditioning. He secures participating exhibitors for A. G. A. exhibits at such national shows at the National Hotel Exposition, the National Restaurant Exposition, the American Dietetic Association, and the American School Food Service Association. (He was installed on Aug. 15 as chairman of the exhibitors advisory committee of the American School Food Service Association.)

Hayes and his wife, Verelene, live in a Larchmont, N. Y., apartment, where he spends many leisure hours "roof-gardening" in his flower gardens. His daughter, Linda, was recently graduated from Cornell University, where she majored in French literature.

Hayes has never regretted his eastward trek. When his friends from the West call New York "a nice place to visit, but not to live," Hayes just smiles and says, "You know, that Horace Greeley had it all wrong."

Because the customer is so vital to the accounting function, it is necessary for the accountant to become a customer relations man

'Customer' needed in accounting

By HENRY R. FLANEGAN

Manager
Customers Service Department
Philadelphia Electric Co.

Why is the "customer" in "customer accounting"? Further, why do we call customer accounting "customer accounting"? It is actually accounting for sales of gas and revenue dollars, not accounting for customers. A long time ago, however, some far-seeing person put the "customer" into the title—and with good reason.

The customer accounting operation—including meter reading, billing, bookkeeping, receiving and collecting payments, and operating commercial offices—is the customer front to a greater extent than either the delivery of gas or the sale of service or equipment. The customer accounting man, therefore, is of necessity a customer relations man—and vice versa.

The importance of the customer in customer accounting is so well recognized that recommendations for new policies and procedures usually include, as a convincing proof of advantage, a statement that the change will improve customer relations.

The evolution of customer accounting from Boston ledgers to data processing has been based on improvement of both the "accounting" and the service to the customer. Today, gas companies, large and small, are studying the feasibility of electronic data processing equipment for billing and bookkeeping; and a careful analysis of customer factors is an important part of these studies. What is necessary is not so much an added appreciation of the importance of the customer; rather, it is a better understanding of the customer angles in customer accounting. This is not to say, however, that the customer angles are necessarily controlling; or that the customer angles are the same in all companies, regardless of size or location; or that one set of policies meets all customer relations problems.

Let us nevertheless set down three points of probable agreement.

First, sound customer accounting operations and sound customer relations policies are not in contradiction to one another. If a policy is not sound from both points of view, it is not sound from either.

Second, sound policy from a customer relations standpoint should be based on experience with customers and not on some hunch regarding what the customer wants—when the "wish may [turn out to] be father to the thought." It is essential to be fact-facing about customer attitudes, even though the results do not support private opinions or pet procedures.

Third, judgments of customer requirements and reactions must consider the whole customer body, just as service policies are based on the greatest good for the greatest number. The problem is to define policies and design customer accounting procedures to satisfy the vast majority of customers without offending those who may have special demands, such as, for example, customers at either extreme of the income scale.

With these assumptions in mind, let us look at three specific customer accounting problems from a customer viewpoint: (1) the frequency of meter reading and billing, (2) the design of the bill form, and (3) the handling of customer inquiries about bills.

First, a word about customer viewpoint. The average customer viewpoint has practically nothing in common with our viewpoint in the gas company. To us, our purposes, policies, practices, and procedures are very important. With the customer, however, they are not.

The gas company is normally nothing in the customer's life. He gets no income from it—unless he is a stockholder—and he pays to it only a small part of his family budget. He has his own personal concerns and family affairs to worry about. The affairs of the gas company are of little concern to him. Except and unless—and this is important—something turns up in his relations with the gas company that affects his personal concerns. Then the gas company's policies and practices become of top importance to him. Soon, however, the routine is re-established and what the gas company does day in and day out—and month in and month out—is again of little importance to the customer.

Thus, our operations must meet a level of acceptance; but, beyond that, the significance of details of policy and practice is slight. Whether the meter reader comes often or seldom, calls or knocks; whether the bill is square or

long and narrow, pink or yellow, delivered or mailed, in an envelope or on a post card; whether the payment period is 10 or 15 days, with or without a discount or penalty (of 3 per cent or 5 per cent)—are things which cannot be promoted to any place of great importance in customer relations. A customer generally accepts the gas company's routine procedures.

But, when a customer asks the meter reader for a meter statement, or calls the office to inquire how much he owes, or says the bill is too much, or asks for an extension of time to pay, or requests a bill forwarded, or wants a delayed payment charge waived, what the gas company does is of prime importance in customer relations. On such occasions, the gas company is on the spot, at the top of the customer's consciousness, and about to be judged by the policy it follows. In short, the customer judges the gas company largely by what happens when he initiates an inquiry or asks for the solution of a problem.

From this customer viewpoint, let us now discuss the frequency of meter reading and billing.

In most gas companies, for many years, meters have been read and bills rendered once a month. The procedure is so definitely established that it is generally taken for granted by company and customers alike. However, it might be well to ask ourselves why we do read meters and bill monthly. Most businesses render their statements based on sales and delivery during the month, but they do not have the problem of visiting their customers' homes to obtain quantity figures as a basis for the billing.

In public services outside the utility field, monthly billing is seldom used. Taxes and fees of government agencies are billed annually. Where the supply of water is a government function, bills are generally rendered semiannually or quarterly. Neither collections nor customer relations considerations enter into the determination of government billing practices; rather, the charges and payments within the time limit of the agency's annual budget are the controlling factors.

What determines the period of meter reading and billing in the gas business?

There are obvious economies in meter reading, billing, and bookkeeping in bimonthly or longer periods. But there are also the difficulties of skipped readings, delayed revenue, high outstanding balances, and increased uncollectibles.

In addition, there is the problem of billing fluctuating house heating use under the restrictions of a monthly block rate table. This situation requires monthly readings, but this is a difficulty of our own making. It is we who have divided the heating season into our billing cycle periods, although the customer is most interested in having his annual heating bill divided either into even payments or at least payments following a normal weather curve. So, monthly schedules have been continued, because changes made in one part of the complicated customer accounting mechanism make themselves adversely felt in other parts of the mechanism.

When the customer angle is injected, the usual variations of opinion are produced. Suppose the customer factors were considered entirely apart from the accounting operation. How would they add up?

Customer can adjust

Let us state a conclusion based on customer experience. It is a fact that the customer has a great adjustability to any billing practice established by the gas company and that any change in routine in this practice is not likely to have serious effects on his attitude. Nevertheless, a customer generally is glad to receive and pay a gas bill each month, even if it is difficult for him to do so. Moreover, there is no evidence of any demand on the part of the customer that monthly bills be based on actual readings.

The preference for a monthly bill is based on fitting a recurring expense into a household spending plan, rather than providing a strict accounting for the exact number of cubic feet of gas used (a gas company angle). But there are exceptions to this preference. Some customers dislike drawing checks each month for a small amount and would prefer to pay once a year. There is also a small proportion of customers who want the monthly bill to be exact because they either like to calculate closely or must divide a bill between tenants. For a great number of customers, however, the monthly bill is most acceptable, and any change from this system should only be made after careful consideration.

With regard to the requirement for "actual" bills, however, the situation is different. The savings in meter reading expense and billing cost are the largest single reason for multiple-month billing. If customer relations do not require "actual" billing, and increased operating efficiency suggests the elimination of "actual" accounting for monthly use, why not make our plans accordingly?

Experience with "estimated" bills or bills in approximate even amounts—so-called "budget bills"—has proved satisfactory, with less resulting customer inquiry about bills than with "actual" bills. An extension of meter reading periods beyond two months to three, four, or even six months is also still within the limits of customer acceptance. It must be recognized, however, that such extended periods will cause some necessary departures from the strict accountability that is the nucleus of present customer accounting methods.

For example, there would be a greater lag in reports of vacancy where customers have moved out without notice, and there would be some delay in assigning responsibility to customers who move in without contracts. There would also be a need for greater tolerance in making adjustments in customer cases of complaints about dates of responsibility, losses due to dissipated gas, and mistakes due to fast or slow meters. The number of such complaints requiring tolerance in settlement, however, would be many times offset by the elimination of complaints on actual bills which vary from month to month within small limits which the customer does not understand. (These variations would be taken up in the average situation reported in the longer period reading.)

In summary, the periodicity of meter reading and billing established by the gas company would be acceptable to all but a few of the company's customers.

Now for a look at the bill form. The gas bill is the most common point of contact of the average customer with his gas company. This fact has often been used to stress the importance of the billing procedure and the significance of the bill form itself. It is generally agreed that the reaction of the average customer to the gas bill is that it is different from other bills he receives—say from the department store or the oil company—and that it is less, not more, understandable. It is also agreed that the bill form has been designed from the point of view of the billing department of the gas company and of the machine manufacturers, rather than from the point of view of the average customer. What interests us now is what we shall do about this.

Even a customer accounting man ad-

mits that some of the present billing processes are unnatural from the customer angle. The items on the bill run across, rather than down. Sometimes the previous meter reading comes before the present one, making the subtraction not only across but also backward. Depending upon the form of rate schedules, thermal units or "cufts" may be shown; the unit price is never shown. Charges may be shown against odd code words, such as "fa" for "former address amount" and "ud" for "unallowed discount." In addition, a number of "other charges" may be lumped into one. Fine print code identification will be carried on the back of the bill, but probably not on the customer's portion. The back of the bill also may or may not show rate information. On the other hand, the face of the bill may carry conspicuous, easily-read advertising information.

There is plenty of evidence that the faults of the bill form do not make any great difference from a customer relations standpoint. The lack of understanding by the customers results not from any particular unintelligibility of the bill; rather, it results from a lack of interest and attention on the part of the customer. On receiving a gas bill, the customer usually glances at the amount and puts the bill aside until it is almost due. He does not study the bill unless the amount arouses his concern: in that case, he may examine the bill and make an inquiry. An improved bill form might save some explanations, but it would not save many high bill complaints.

The lack of interest in everything about the bill but the amount can be dramatically proved by simply talking to customers. Customer surveys which include bill questions indicate the most amazing confusion, ignorance, and lack of interest on the part of the customer in his bill. You may not believe this, but most customers do not even know offhand the name of their gas company, the most conspicuous item printed on the bill. To many customers, "M" means millions, or money, or months—anything but thousands. As for the service codes, one customer thought that "5-C" meant that the rate was five cents a hundred cubic feet, and he called attention to the error in the bill amount.

Customers asked to calculate the bill from information given produce the most fantastic results. Do you always get the right answer yourself? A high school teacher, explaining gas bills, calculated a higher amount than the bill showed, whereupon the girl who brought the bill explained that her father worked for the gas company. The teacher said that he evidently got a preferential rate because of his position.

What is the conclusion drawn from this? Should we hasten to a revision of bill forms?

By and large, a gas bill form to which a customer is accustomed has an important point in its favor: it has become familiar. There should be a good reason for any changes, because they may produce inquiries, if not criticism. There is no merit in provoking inquiries—out of which no good can come—simply for the sake of answering them. Changes should, however, be made at points where common sense is violated—and there are some such points in almost every bill form. For example, an "estimated" bill should not be shown as "actual." Odd period bills should be identified by more than just dates. If rate schedules are in "M" cubic feet, they should either be changed to "C" cubic feet, or the billing unit should be changed to "M" cubic feet.

Changes are accepted

The redesigning of a bill form and bill information is not important to customer relations, and any substantial changes resulting from new machine processes should not be excused for this reason. On the other hand, changes, unless they arouse the suspicion that the company is trying to hide something, can be made with no adverse customer reaction beyond some routine inquiries.

With regard to meter reading, billing frequency, and the bill form, we have found that variations present no great hazard to "customer relations." We come to something now, however, that can present such a hazard: that is the requirement upon customer accounting for prompt and accurate information.

There is one sense in which an accounting system exists for its own sake; that is, it exists to provide the necessary details of expense, sales, and receipts that are required for the guidance or summation of operations. Even if there were never either a customer inquiry or complaint about an amount owing or a customer request for an extension, a customer accounting job, including some bookkeeping, would have to be done. Many records, however, are needed primarily for inquiry-reference purposes.

The relationship between data processing and record-creating is an important consideration in the design of the mechanics of the process and the economies of machine applications. Generally, the more data processing and the less record-creating, the greater the economy of machines. However, new procedures cannot be formulated on the basis of accounting considerations only. There is still the requirement on customer accounting for serving the customer with information. Accuracy, smooth flow, and economy are top considerations in accounting practice; but there are also important requirements for the businesslike handling of customer inquiries. Remember that the company and its accounting process will be judged by the customers on the bases of the promptness, accuracy, and courtesy with which these inquiries are handled.

The question of accuracy can be disposed of with the comment that "accuracy is accuracy," and not more so because customer inquiries must be answered. Equal in importance to accuracy, however, are the intelligibility and completeness of information and the courtesy and promptness with which this information is given. These factors depend on the customer accounting set-up and the methods used in transmitting information.

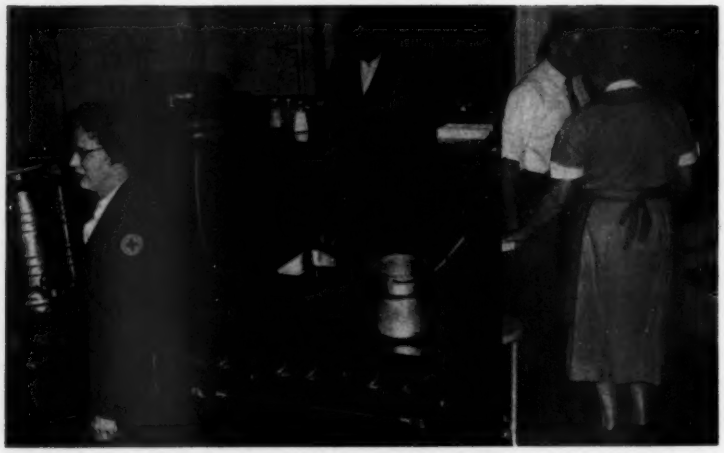
It is not intended here to consider the advantage of one accounting procedure over another, nor to discuss the mechanics of communicating and transmitting information, nor to make assumptions regarding the customer relations significance of a given degree of promptness or delay in providing inquiry information.

Gas companies have generally delegated the functional operation of customer service work to a group of specialists, rather than to employees trained for accounting and clerical proficiency. Assuming that there is a division of responsibility between the bookkeeper and the service clerk, what are some of the considerations, from the standpoint of serving customers, that affect accounting methods? Of course, there are no final answers that are valid for all conditions, because there are variations in numbers of customers, degree of decentralization, single or combination companies, and departmental division of authority.

First of all, however, we can agree that giving a number of references to the customer accounts is a relatively small

(Continued on page 34)

F. THOMPSON BROOKS, *CHAIRMAN* • FRED A. KAISER, *VICE-CHAIRMAN*



A Vulcan double-oven, 10-burner gas range is located in the center of the kitchen

Three-spigot urn keeps constant coffee supply

Red Cross proud of gas kitchen

The Metropolitan Boston Chapter of the American Red Cross has installed a compact, modern, multi-purpose gas kitchen at its headquarters in Boston. The chapter, which selected gas "for its dependability and efficiency," will use the kitchen for the preparation of food for day-to-day Red Cross activities and for the mass feeding of the public in the event of a disaster or emergency.

Gas equipment installed in the kitchen includes a double-oven; a 10-burner Vulcan gas range of stainless steel; a gas-fired Market Forge steamer combination, including a 20-gallon steam kettle for soups and stews; a double-service, three-spigot coffee urn; and a 300-gallon Burkay booster water heater.

Other pieces of equipment in the kitchen are a 30-cubic-foot refrigerator, a dishwasher, a disposal unit, a serving counter with a steam table, a six-foot-by-two-foot cook's table, three sinks (including a pot sink with constant 180° hot water), and 180 square feet of cabinet and storage space.

The kitchen, which occupies a 20-foot-by-20-foot area, is usually staffed by four Red Cross volunteer workers and one part-time employee. Its design, however, features a "free-flowing traffic pattern," which will allow as many as 10 workers to utilize its facilities without any confusion or duplication of effort.

Charles Doucot of Charles Doucot, Inc., designed and installed the kitchen. Mr. Doucot, who is also a Red Cross volunteer, explained that gas was chosen "for its dependability and efficiency." With the technical assistance of Boston Gas Co. personnel and with what we had in mind from a Red Cross point of

Section schedules several meetings for fall

The Industrial and Commercial Gas Section has scheduled a number of meetings and exhibitions for the fall.

The sixth biennial Industrial Gas School will be held from Sept. 14-18 at the Penn-Sheraton Hotel in Pittsburgh.

The third annual Textile Symposium will take place from Sept. 28-29 at the Sedgefield Inn in Greensboro, N. C.

During the week of Nov. 2, the Section will feature an extensive Combined Industrial Gas Exhibit at the National Metal Exposition and Congress in Chicago's International Amphitheater. On Nov. 4, the Section will sponsor its 23rd annual Industrial Gas Breakfast.

In addition, during the same week, A. G. A. will maintain an extensive exhibit—the largest single display—at the National Hotel Exposition in New York City's Coliseum.

On Nov. 4, the Industrial and Commercial Section will hold its 12th Commercial Gas Breakfast.

Kitchen has a Burkay booster water heater

The kitchen of the Boston Chapter of the American Red Cross has many gas appliances

Boston chapter selects gas "for its dependability and efficiency"; kitchen proves its effectiveness for both day-to-day activities and for mass feeding of public

view, we came up with this plan. The kitchen has exceeded our expectations and we are very proud of the way it has been handling our mass feeding test runs."

The mass feeding projects have included 12 luncheons, three teas, and four dinners—during Red Cross Month in March—for volunteer workers, first aid instructors, and junior Red Cross councils. The meals served included 1,100 hot "snapshot servings," more than 150 special luncheons, and 200 full-course suppers. In addition, some 2,000 cups of coffee were prepared and consumed in the kitchen and more than 800 more were sent out in Red Cross bloodmobiles during that time.

In another test, the kitchen handled meals for 350 people at one sitting.

The kitchen, the only one of its kind in the area, is not open to the public. However, besides being used for Red Cross operations, it serves as a cafeteria for volunteers and staff personnel on a non-profit, self-sustaining basis.

Market Forge unit with 30-gallon kettle (l.) and steamer (r.) cooks meals quickly

New A.G.A. members

In order that members may keep their *A. G. A. Membership List* up to date, the A. G. A. MONTHLY publishes quarterly all new member companies, manufacturers, and individual members who have become affiliated with the Association since the membership book was published.

A style similar to that used in the *A. G. A. Membership List* is reproduced here. It is suggested that these pages be removed from the MONTHLY and attached to the membership book.

Gas Companies

Columbia Gulf Transmission Co.
P. O. Box 683 ..... Houston 1, Tex.
J. W. Kelley, Pres.

Illinois Electric & Gas Co.
518 Walnut St. ..... Murphysboro, Ill.
Fred D. Ellis, Pres. (807 Davis St., Evanston, Ill.)

Ocala Gas Co., Inc.
113 E. Broadway ..... Ocala, Fla.
Carl Coslick, Mgr.

Ohio Valley Gas Co., The
99 North Front St. ..... Columbus 15, Ohio
A. W. Lundstrum, Pres.

Pequot Gas Co.
19 Railroad Ave. ..... Westerly, R. I.
R. L. Gourley, Pres.

South County Gas Co.
19 Railroad Ave. ..... Westerly, R. I.
Richard A. Sullivan, Pres. (10 State St., Boston 9, Mass.)

Associate Members

Empire Gas Engineering Co.
1958 Monroe Drive, N. E. (P. O. Box 1738) . Atlanta, Ga.
S. G. Wager, Engr.

Tidewater Oil Co.
P. O. Box 1404. ..... Houston 1, Tex.
A. M. Mouser, Mgr. Gas Utlzn. Dept.

Service Companies

Littrell Gas Service Corp.
2100 Constitution Blvd. ..... Sarasota, Fla.
Robert P. Grey, Pres.

Individual Members

Alger, Charles W. ..... Pacific Gas & Electric Co.
New Bldg. Rep've. ..... P. O. Box 1031, Chico, Calif.
Ashcraft, Raymond R. ..... Cincinnati Gas & Electric Co.
Gas Sales Engr. ..... P. O. Box 960, Cincinnati 1, Ohio
Aziz, Khalid ..... Karachi Gas Co., Ltd.
Acting Dsbn. Engr. ..... G. P. O. Box 318, McLeod Rd., Karachi, Pakistan

Baetzner, Karl E. ..... Washington Gas Light Co.
Asst. Supt. Mains Plnng. ... 1100 H St., N. W., Washington 5, D. C.
Bailey, Max L. ..... Michigan Consolidated Gas Co.
Chief Acctnt. ..... 47 Division Ave., N., Grand Rapids, Mich.
Barnett, C. C. ..... United Gas Pipe Line Co.
Vice Pres. ..... P. O. Box 1407, Shreveport, La.
Barnett, Ronald T. ..... Northern Natural Gas Co.
Safety Engr. ..... 2223 Dodge St., Omaha 1, Neb.
Barrow, Wyle W. ..... Washington Gas Light Co.
Treas. ..... 1100 H St., N. W., Washington 5, D. C.
Barrowclough, Arthur F. .... Clewell Equipment Co.
Sales & Serv. Asst. Exec. . 879 Mt. Prospect Ave., Newark 4, N. J.
Barton, J. S. ..... British Columbia Electric Co., Ltd.
Applcns. Engr. ..... 970 Burrard St., Vancouver 1, B.C.
Batten, Robert B. ..... Michigan Consolidated Gas Co.
Asst. to Engr. ..... 415 Clifford St., Detroit 26, Mich.
Batz, Henry G. ..... Long Island Lighting Co.
Mgr. Custmr. Serv. ..... Orinoco Blvd., Brightwaters, N. Y.
Berry, C. Oscar ..... Washington Gas Light Co.
Vice Pres. & Gen. Counsel . 1100 H St., N. W., Washington 5, D. C.
Bickel, Herbert J. ..... Texas Eastern Transmission Corp.
Analyst ..... Box 1189, Houston 1, Tex.

Blair, S. Robert ..... Alberta & Southern Gas Co., Ltd.
Ops. Engr. ..... Natural Gas Bldg., Calgary, Alta.
Bogus, Michael E. ..... Commercial Equipment Distributors
Partner-Gas Sales Speclst. . 1046 North Ave., Elizabeth 4, N. J.
Bolton, William J. ..... Long Island Lighting Co.
Mgr. Dsbn. Engrng. Dept. . 175 Old Country Rd., Hicksville, N. Y.
Briody, John M. ..... Michigan Consolidated Gas Co.
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Industrial Relations

(Continued from page 15)

slow and mistakes inevitable. The IBM machines and the employees devote more than 75 per cent of the time to other accounting work (work force calculations, production yield formulae, maintenance of job costs, property accounting, etc.) with less than 25 per cent of the time, or less than two hours per day, required for supplies accounting.

The arbitrator did not find that the company had acted either in bad faith or capriciously and arbitrarily. The evidence showed, he said, that the company had made the reorganization "in good faith for more efficient operation to meet competition and to continue progress."

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Positive meters can be used in high-pressure measurement

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According to Boyle's and Charles' laws, the volume occupied by an ideal gas varies where the volume is directly related to the factor, $\left(\frac{\text{Temperature}}{\text{Pressure}}\right)$. Natural gas does not follow ideal gas laws, however, and under high pressures its volume is less than would be expected from the ideal gas laws. As a result, a given-sized container of gas at high pressure will hold more gas than a straight pressures-temperatures ratio would indicate. This difference from ideal gas laws is called deviation. (In orifice meter measurement, the square root of deviation is widely used, and is called Fpv or supercompressibility.) Deviation can amount to well over 5 per cent and up to 20 per cent at high pressures, and its effect should be considered in measurement.

For many years, nearly all high-pressure measurement was recorded by orifice meters. Positive meters were generally associated with measurement at relatively low pressures, and the effect of deviation or supercompressibility of natural gas at these pressures was small and was generally ignored. However, with operating costs continually on the increase, together with the development of improved positive meters and techniques for properly utilizing these meters, the situation is changing. Many positive meters are now being used for high-pressure measurement. The advantages to be gained by metering at high pressure, as compared to regulating and metering at low pressure, are the following:

1. The available pressure is conserved, allowing for smaller size piping.
2. The size of the meter is smaller, thereby conserving space.
3. The costs of the high-pressure metering facilities may be much less than the cost of equivalent capacity low-pressure facilities.

Several sizes and models of high-pressure positive meters are available. In the 250-pound pressure rating are the 25-B, the 80-B, the 250-B, and the 500-B Metrics. In the 500-pound pressure rating are the two and one-half, three, and four Emcos. At a 1,000 pound pressure rating are the 35-B Metric and two and one-half Emco. The Connersville meters are also available with high-pressure outer cases up to 3,000 pound pressure rating, and a 600-pound pressure rating 5 x 15 Connersville is being developed. The following figures show some of these meters. (All pressure ratings mentioned are manufacturers' ratings.)

Fig. 1: This 500 pound, 4 Emco meter is 35" high x 29" wide x 22" deep. Its capacity at 500 psig is approximately 50,000 standard cubic feet per hour

Fig. 2: This 1,000 pound, 35-B Metric meter is 28" high x 18" wide x 18" deep. Capacity at 1,000 psig is approximately 25,000 standard cubic ft. per hour

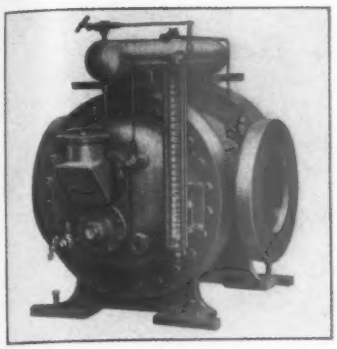


Fig. 3: This 600 pound 5 x 15 Connersville meter is 29" high x 26" wide x 41" deep. Its capacity at 600 psig is over one million standard cubic ft. an hour

Other high-pressure positive meters are also available now. In addition, most standard low-pressure positive meters can be adapted for high pressure by encasing the meter in a suitable enclosure. Here, the outer enclosure will hold the static pressure, and the meter is only subject to the differential pressure, or pressure drop, from the meter inlet to the meter outlet.

In positive measurement, deviation, $(Fpv)^2$, affects the measured volume as a direct multiplier. This is shown in the following equation for determining total volume.

$$Qt = R \times \left[\frac{Pg + Patm}{Pb}\right] \times \left[\frac{Tb}{460 + Tm}\right] \times (Fpv)^2$$

Where: Qt = Total volume measured in standard cubic feet.
R = Index registration in cubic feet.
Pg = Pressure, gauge, #/in.²
Patm = Pressure, atmospheric, #/in.² absolute (varies with meter elevation). See Table 10 of atmospheric pressure vs. elevation.
Pb = Pressure, base; 14.73 #/in.² absolute.
Tb = Temperature, base; 520° F. absolute = 60° F.
Tm = Temperature, meter, °F.
Fpv = Supercompressibility factor, where $(Fpv)^2$ = deviation from Boyle's Law.

For example, where:

R = 1,000 cu. ft.	Tb = 520° F. absolute (60° F.)	
Pg = 550 psig.	Tm = 40° F.	
Patm = 14.73 psia.	Fpv = 1.0644	.650 sp. gr. gas with no diluents; A.G.A. Report
Pb = 14.73 psia.	$(FPv)^2 = 1.1329$	No. 3, page II-271.

$$Qt = 1{,}000 \times \left[\frac{550 + 14.73}{14.73}\right] \times \left[\frac{520}{460 + 40}\right] \times 1.1329$$

Qt = 45,171 std. cu. ft.

If deviation had not been included, the incorrect value of Qt would have been 39,872 or 5,299 cubic feet less than were actually metered.

Since the effects of deviation can amount to well over 5 per cent, or even 20 per cent at high pressures, such effects should be considered in high-pressure positive measurement. For accurate measurement, even at relatively low pressures below 100 psig, it is necessary to account for deviation. Some companies account for deviation from one-half psig and up, while other companies apply deviation from 15 psig and up.

Deviation—the square of the supercompressibility factor, Fpv—is dependent upon the composition of the gas being measured (specific gravity and diluents generally suffice) and the pressure and temperature of measurement (called flowing pressure and flowing temperature, respectively).

Tables of supercompressibility factors, Fpv, are included in the *A. G. A. Measurement Committee Report No. 3* (Table 16A); and an extensive listing of Fpv values is contained in the seven volumes of *Supercompressibility Factors for Natural Gas* published by A. G. A. as a supplement to *A. G. A. Measurement Report No. 3.*

Additional tables of supercompressibility factors are also available in other measurement bulletins, and formulas for computing Fpv, rather than using table look-ups, are also available. This subject is well covered in Paul Nelson's A. G. A. Bulletin GSTS-56-1, *The Effect of Supercompressibility on Gas Measurement and the Use of Presently Published Tables of Factors To Correct This Effect."*

If gas composition and metering conditions remain constant, one value of $(Fpv)^2$ will suffice. For general situations, variation usually occurs in one or more of the metering conditions, and various values of $(Fpv)^2$ must be used as appropriate for each measurement period. Corrections for $(Fpv)^2$ can be made in the office after measurement data have been collected, or after appropriate values can be computed and adjusted into automatic pressure or temperature correcting instruments so that the meter index will automatically include the proper $(Fpv)^2$ values in the registration.

Whether deviation is used for positive measurement or not may depend on the contractual agreements or the degree of measurement accuracy required. If deviation is used, the method of application may vary depending upon accuracy versus cost economics of various systems and availability of facilities or manpower. It may also be a contractual matter.

Some methods for handling deviation are described in the following paragraphs. Each is adaptable to different sets of conditions; some suitable for one and some suitable for others. They are offered as suggestions for different methods of handling the problem. Other methods or combinations of these methods may be more suited to particular situations.

Whatever system the measurement engineer uses, he should be aware of its cost and its relative accuracy as compared to other systems which might be applicable. Each application must be thoroughly documented with proper records and should be reviewed on some regular basis, perhaps once each year. The records and the review assure that the proper results are being obtained and that changes can be made according to changing conditions or operating experience.

Each period, when the meter is read and reported to the measurement office, a new deviation factor is calculated. If the metering conditions remain unchanged, the previous deviation factor can be used.

The effect of deviation can be computed weekly, monthly, or at any other appropriate interval in the same manner that Fpv factors for orifice meter computations are made. The necessary data concerning meter index registration, flowing pressure, flowing temperature, and gas composition (specific gravity and diluents) must be known or estimated.

These values can be obtained from meter registration ledgers; pressure charts at the meter (or if regulated pressure, the pressure setting can be used); temperature charts at the meter (or average temperatures from weather reports in the area).

Gas composition can be obtained from analyses run for nearby orifice meters, analyses of spot samples, or from prior records for that area. If conditions are stable, data covering long periods can be used; however, if conditions are changing widely and rapidly, then data should be obtained more frequently and used in shorter intervals. Fig. 4 and Fig. 5 show typical instruments for recording pressures, volumes, and temperatures.

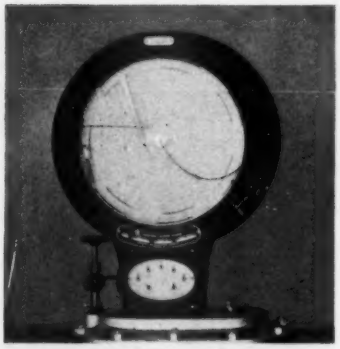


Fig. 4: This volume feeding recorder, mounted on meter index, is used to determine the pressure average and range

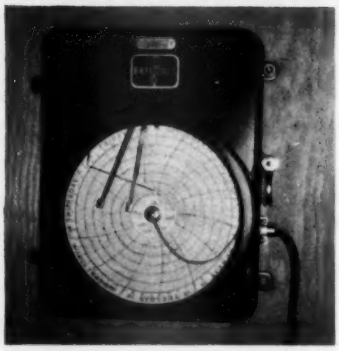
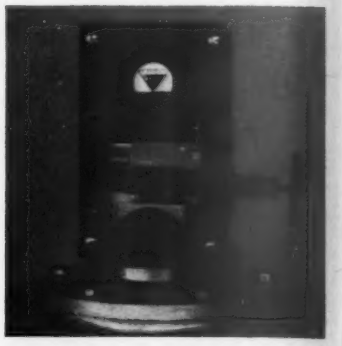


Fig. 5: The pressure and/or pressure recorder is used to determine range and average of either pressure or temperature or both. It is usually mounted on the meter but not always on the index



Figs. 6: The automatic pressure correctors are devices that automatically correct for pressure. They mount directly to the meter in place of the usual index. Each is equipped with two registers. One register is uncorrected, one corrected

When the proper values of pressure, temperature, and gas composition are available, the tables of supercompressibility factors, Fpv, are entered and the proper Fpv value is obtained. For example, if the pressure is 320 psig, the temperature is 30° F., and the specific gravity is .625 (no diluents). Page 110 of Volume 1, *A. G. A. Tables of Supercompressibility Factors, Fpv* shows the Fpv value to be 1.0356. The proper deviation value is the square of this, or 1.0725. As long as the metering conditions remain constant, this value can be used again.

Therefore, if a meter with the above conditions had an index registration of 5,800 cubic feet, the total volume in standard cubic feet would be as follows:

$$Qt = \text{Index Registration} \times \text{Pressure Multiplier} \times \text{Temperature Multiplier} \times \text{Deviation Factor, } (Fpv)^2$$

$$Qt = 5{,}800 \times \left[\frac{320 + 14.73}{14.73}\right] \times \left[\frac{520}{460 + 30}\right] \times 1.0725$$

$Qt = 150{,}009$ std. cu. ft.

By this method, the meter is equipped with an automatic pressure corrector which is adjusted to include both the pressure and the deviation correction. Figs. 6 show two typical automatic pressure correctors.

As a rule, this application will be used when the flowing temperature is quite constant (such as in an underground meter station or during seasons when temperature changes are small), or in the pressure regions below 250 psig. As the pressure increases to 500 psig or above, the temperature effect on $(Fpv)^2$ values becomes quite large, and a practice of assuming a single average temperature value could lead to unnecessary errors.

For an application in the lower pressure regions, consider this example: The expected average temperature is 40° F.; the flowing pressure is expected to vary between 160 psig and 300 psig, and the specific gravity is .640 (no diluents). Appropriate values of Fpv are obtained from Volume 1, page 135 of *A. G. A. Tables of Supercompressibility Factors, Fpv.* Table 1 shows the Fpv factors for various pressures as they would appear in the A. G. A. volume.

These values are then squared to obtain deviation, $(Fpv)^2$. Each deviation value means that a multiplier of this amount must be included in the volume computation at that point. Since automatic pressure correcting instruments are generally calibrated according to ideal gas laws, where points out of calibration are expressed in per cent error, the effect of deviation can be included in the instrument by adjusting to appropriate per cent errors. These are also shown in the table.

TABLE 1

DEVIATION, $(Fpv)^2$, VALUES

Specific Gravity .640, Temperature Average 40° F.

	Psig							
	160	180	200	220	240	260	280	300
Fpv	1.0172	1.0193	1.0215	1.0236	1.0258	1.0280	1.0303	1.0325
$(Fpv)^2$	1.0347	1.0390	1.0435	1.0478	1.0523	1.0568	1.0615	1.0661
Adjust pressure corrector to these per cent errors to correct for deviation.	+3.47	+3.90	+4.35	+4.78	+5.23	+5.68	+6.15	+6.61

The pressure corrector is adjusted at each pressure, or as many points as would normally be used. At each pressure, the appropriate error is calibrated in, for example, +4.78 per cent at 220 psig, +5.23 per cent at 240 psig, etc. Then, as the meter operates and the pressure changes, the proper $(Fpv)^2$ value for that particular pressure will be accounted for and the corrected register will indicate in corrected cubic feet. (Since the expected average temperature is 40° F. in the

example, a further correction for temperature may be required to obtain standard cubic feet at 60° F. However, a simple, constant multiplication can be made in the office to cover this factor, or the instrument can be adjusted to include it.)

When the meter is equipped with an automatic pressure and temperature corrector, the pressure and temperature corrector elements of the instrument may be adjusted to include the deviation factor. Fig. 7 shows a typical automatic pressure and temperature corrector.

With this system, a relatively high degree of precision is obtained since the appropriate deviation value for the pressure and temperature in the meter during the instant of measurement is included in the index registration.

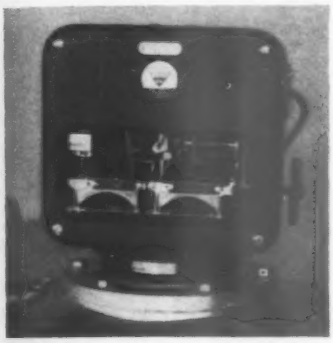


Fig. 7: Automatic pressure and temperature corrector automatically corrects for both pressure and temperature. Two registers are on the instrument, one corrected, and one uncorrected

Because deviation is not precisely linear with all combinations of pressure and temperature, the most accurate results are obtained by making the basic or major adjustment in the portion of the corrector, either temperature or pressure, which has the largest effect on $(Fpv)^2$. The following examples show this operation.

Example A: Pressure is regulated to 780 psig; the expected low is 760 psig, and the high is 800 psig.

The temperature is not controlled and it is expected to vary from 20° F. to 100° F. with an average of 60° F. (Estimated values should be verified by installing pressure and temperature recorders at appropriate periods or by spot field checks.) The gas specific gravity is .640 (no diluents). Appropriate $(Fpv)^2$ values for these conditions are shown in Table 2.

TABLE 2
DEVIATION, $(Fpv)^2$, VALUES VS. TEMPERATURE AND PRESSURE*
Specific Gravity .640

	Temperature °F.				
Psig	20	40	60	80	100
760	1.2250	1.1855	1.1561	1.1323	1.1124
780	1.2323	1.1914	1.1606	1.1361	1.1156
800	1.2399	1.1971	1.1651	1.1398	1.1185

* Volume II, "A. G. A. Tables of Supercompressibility Factors, Fpv."

The expected average of $(Fpv)^2$ is 1.606 at 780 psig and 60° F.; however, at the extremes of temperature and pressure, this value could be as low as 1.1124 at 760 psig and 100° F., or as high as 1.2399 at 800 psig and 20° F.

To select proper values for adjusting the instrument, the factor which has the most variation is taken as a base. In this instance, it is the temperature variable (i.e., over the expected 20° F. to 100° F. temperature range. $(Fpv)^2$ varies from 1.2323 to 1.1156, a range of more than 10 per cent; whereas over the expected 760 psig to 800 psig pressure range, $(Fpv)^2$ will vary from 1.1561 to 1.1651, a range of only 1 per cent).

Using temperature as the main variable, Table 3 shows the $(Fpv)^2$ value for each temperature at the expected average pressure of 780 psig.

TABLE 3
TEMPERATURE ADJUSTMENT FOR EXPECTED AVERAGE PRESSURE OF 780 PSIG

	Temperature °F.				
	20	40	60	80	100
$(Fpv)^2$	1.2323	1.1914	1.1606	1.1361	1.1156
Adjust to these per cent Errors	+23.23	+19.14	+16.06	+13.61	+11.56

That is, the temperature corrector is adjusted to have +23.23 per cent error at 20° F., +19.14 per cent error at 40° F., etc. This is an error from the normal temperature correction at those points.

Because the linkage, or range of the temperature correcting element in the instrument, may have a rather limited range for adjusting, the driving gear arrangement may have to be used in order to make up a portion of the adjustment. In the example, an average temperature error of about 15 per cent is expected.

This is on the order of a 75° F. difference, and few instruments have sufficient range in their elements to handle this. If the driving ratio is increased to 1.15:1.00, a 15 per cent increase, then the remaining amount of adjustment, some 5 per cent or 25° F., can probably be handled by the instrument.

When this is done, it must be remembered that it is a multiplier effect which will be in all temperature corrections. For the preceding table, with a +15 per cent error in the driving gear ratio, the amount of adjustment in the temperature corrector linkage should be +7.16 per cent at 20° F., +3.60 per cent at 40° F., +.92 per cent at 60° F., —1.21 per cent at 80° F., and —3.00 per cent at 100° F. If these are expressed as ratios, i.e., + 7.16 per cent = 1.0716, and multiplied by 1.1500, they will be found to equal the $(Fpv)^2$ values above.

With the basic $(Fpv)^2$ values entered in the temperature corrector, appropriate difference multipliers must be put in the pressure corrector. The temperature average is expected to be 60° F.; hence, the $(Fpv)^2$ values for pressure must be taken at that point. These values are then divided by the expected average $(Fpv)^2$ value (1.1606 at 60° F., 780 psig), since it is already included in the temperature corrector. The result becomes the difference multiplier which is needed for the pressure corrector shown in Table 4. These particular values are small, only because the range of pressure variation was small. In general, pressure will vary more, and the necessary adjustment values will be larger.

TABLE 4
PRESSURE ADJUSTMENT FOR EXPECTED AVERAGE TEMPERATURE OF 60° F.

Psig	$(Fpv)^2$	$(Fpv)^2 \div 1.1606$	Adjust to These Per Cent Errors
760	1.1561	.9961	—.39
780	1.1606	1.0000	.00
800	1.1651	1.0039	+.39

To describe just what takes place in the pressure and tem-

$$\left[\text{P, T, \& } (Fpv)^2\right] \text{ Factor} = \left[\begin{array}{l}\text{Temperature Corrector with}\\ +23.23 \text{ per cent Error at}\\ 20^\circ \text{ F.}\end{array}\right] \times \left[\begin{array}{l}\text{Pressure Corrector with } +0.39\\ \text{per cent Error at 800 psig.}\end{array}\right]$$

$$\left[\text{P, T, \& } (Fpv)^2\right] \text{ Factor} = \left[\begin{array}{l}\text{Base Temperature}\\ \text{Correction for}\\ 20^\circ \text{ F.}\end{array}\right] \left[\begin{array}{l}(Fpv)^2 \text{ Factor for}\\ 20^\circ \text{ F. and}\\ 780 \text{ psig.}\end{array}\right] \times \left[\begin{array}{l}\text{Base Pressure}\\ \text{Correction for}\\ 800 \text{ psig.}\end{array}\right] \left[\begin{array}{l}\text{Difference Multiplier}\\ \text{between } (Fpv)^2\\ \text{Factor at } 60^\circ \text{F.}\\ \text{and 780 psig,}\\ \text{and } 60^\circ \text{F. and}\\ 800 \text{ psig.}\end{array}\right]$$

$$\left[\text{P, T, \& } (Fpv)^2\right] \text{ Factor} = \left[\frac{520}{460+20}\right] \left[\ 1.2323\ \right] \times \left[\frac{800+14.73}{14.73}\right] \left[\ 1.0039\ \right]$$

perature correctors, take the operating conditions of 20° F. and 800 psig. (See equation above.)

Combining the temperature and pressure parts of the $(Fpv)^2$ factor yields $(1.2323)\ (1.0039) = 1.2371$ as the approximated value for 20° F., 800 psig. The actual table value at this point is 1.2399, or only .0028 higher. (This is within 0.25 per cent.) If the entire range of $(Fpv)^2$ values is multiplied out as the instrument would produce them, the range would appear as shown in Table 5. The figures in parentheses indicate the per cent difference between each $(Fpv)^2$ instrument value and the actual table value. In operation the plus errors would tend to cancel the minus errors, yielding average results much closer than the extreme value mentioned above.

TABLE 5

DEVIATION, $(Fpv)^2$, VALUES AS PRODUCED BY THE PRESSURE-TEMPERATURE CORRECTOR

Pressure Psig	Temperature °F. 20	40	60	80	100
760	1.2275 (+.20%)	1.1868 (+.11%)	1.1561 (00%)	1.1317 (−.05%)	1.1112 (−.11%)
780	1.2323 (00%)	1.1714 (00%)	1.1606 (00%)	1.1361 (00%)	1.1156 (00%)
800	1.2371 (−.23%)	1.1960 (−.09%)	1.1651 (00%)	1.1405 (+.06%)	1.1200 (+.13%)

Example B: As another example of this application, consider the following. The meter is operated only in summer and the temperature is expected to vary from 60° F. to 100° F., with an average of 80° F. The pressure is not regulated and is expected to vary from 160 psig to 300 psig with an average around 260 psig. The specific gravity is .640 (no diluents). Table 6 shows the appropriate $(Fpv)^2$ values for each pressure and temperature.

TABLE 6

DEVIATION, $(Fpv)^2$, VALUES VS. TEMPERATURE AND PRESSURE*

.640 Specific Gravity

Pressure Psig	Temperature °F. 60	81	99
160	1.0300	1.0264	1.0233
180	1.0339	1.0294	1.0262
200	1.0377	1.0327	1.0290
220	1.0414	1.0359	1.0318
240	1.0453	1.0392	1.0347
260	1.0492	1.0426	1.0377
280	1.0529	1.0459	1.0406
300	1.0570	1.0492	1.0437

* Volume I, "A. G. A. Tables of Supercompressibility Factors, Fpv."

Since the maximum variation of the $(Fpv)^2$ factor occurs with pressure, this is selected as the base and the pressure corrector is adjusted to these values. (If the adjustment range of the pressure corrector is insufficient to handle the full $(Fpv)^2$ values, then the output gearing ratio can be utilized in the same manner as the temperature corrector was handled in the previous example.) Table 7 shows $(Fpv)^2$ values for each pressure at the expected average temperature of 80° F.

TABLE 7

PRESSURE ADJUSTMENT FOR EXPECTED AVERAGE TEMPERATURE OF 80° F. (81° F. ACTUAL VALUE)

	Pressure, Psig 160	180	200	220	240	260	280	300
$(Fpv)^2$	1.0264	1.0294	1.0327	1.0359	1.0392	1.0426	1.0459	1.0492
Adjust to These Per Cent Errors	+2.64	+2.94	+3.27	+3.59	+3.92	+4.26	+4.59	+4.92

With the basic $(Fpv)^2$ values entered in the pressure corrector, the appropriate difference multipliers must be put in the temperature corrector. The pressure average is expected to be 260 psig, so the $(Fpv)^2$ values for temperature are taken at that point.

TABLE 8

TEMPERATURE ADJUSTMENT FOR EXPECTED AVERAGE PRESSURE OF 260 PSIG

T, °F.	$(Fpv)^2$	$(Fpv)^2 \div 1.0426$	Adjust to These Per Cent Errors
60	1.0492	1.0063	+0.63
81	1.0426	1.0000	0.00
99	1.0377	.9953	−0.47

Multiplying the temperature and pressure values for $(Fpv)^2$ as the instrument would produce them yields the values shown in Table 9. The figures in parentheses indicate the per cent difference between each $(Fpv)^2$ instrument value and the values obtained from A. G. A. tables. In operation, the plus errors would tend to cancel the minus errors, yielding average results very close to the actual A. G. A. table values.

If both the actual average pressure and temperature were found to be different from those for which the instrument was adjusted, then a correction should be made. If only one is found to be different, no adjustment need be made, since there would be no error as the instrument corrects for it.

Even when both average pressure and average temperature are different—unless the differences are extremely large—the instrument can be left as it is and an appropriate correction value applied in the office. In the last example, the expected

TABLE 9

DEVIATION, $(Fpv)^2$, VALUES AS PRODUCED BY THE PRESSURE-TEMPERATURE CORRECTOR

Psig	Temperature °F. 60	81	99
160	1.0239(+.29)	1.0264(00)	1.0216(—.17)
180	1.0359(+.20)	1.0294(00)	1.0246(—.16)
200	1.0392(+.15)	1.0327(00)	1.0278(—.12)
220	1.0424(+.10)	1.0359(00)	1.0310(—.08)
240	1.0457(+.04)	1.0392(00)	1.0343(—.04)
260	1.0492(00)	1.0426(00)	1.0377(00)
280	1.0525(—.04)	1.0459(00)	1.0410(+.04)
300	1.0558(—.12)	1.0492(00)	1.0443(+.06)

average pressure and temperature were 260 psig and 80° F., respectively. If the actual average temperature and pressure were 60° F. and 220 psig, a correction of only —0.10 per cent should be made to account for the expected error at that point of +0.10 per cent.

In conclusion, deviation for positive measurement is important and should be considered by each measurement engineer. The application of the principles relating to deviation correction is similar to much other measurement work and should be considered and treated that way.

Since there are several methods of handling deviation, the measurement engineer should become familiar with them and select those best suited to his needs. When a positive meter is to be tested with a critical flow prover, deviation should also be considered. (See the October 1957 article in the A. G. A. MONTHLY on *Effect on Supercompressibility.*)

Proper training in methods and procedures and thorough written instructions must be used for deviation. Also, the necessary computations of $(Fpv)^2$ values and determination of error adjustments should probably be performed in the office where complete records can be maintained.

Field measurement personnel must also be advised of practices used to handle deviation, even if they are not doing the direct work. This is necessary because most measurement field personnel are trained to correct errors in instruments, and if they find one with over 20 per cent error, they might recalibrate it to zero error, not realizing that this is intended to cover deviation.

TABLE 10

ATMOSPHERIC PRESSURE VS. ELEVATION

Elevation, Feet	Atmospheric Pressure, Psia
— 200 to + 199	14.73
+ 200 to + 599	14.53
+ 600 to + 999	14.32
+1,000 to +1,399	14.12
+1,400 to +1,799	13.92
+1,800 to +2,199	13.72
+2,200 to +2,599	13.53
+2,600 to +2,999	13.33
+3,000 to +3,399	13.14
+3,400 to +3,799	12.96
+3,800 to +4,199	12.77

Tolford succeeds Gmeiner as president of Citizens Gas Fuel

JOHN K. TOLFORD has been elected president of Citizens Gas Fuel Co. He succeeds E. V. Gmeiner, who retired after 20 years in that post.

Mr. Gmeiner entered the utility industry in 1914. He subsequently served with several utilities in administrative capacities. In 1933, he became general superintendent of Citizens Light and Power Co. and Citizens Gas Fuel.

In 1938, when Citizens Light and Power was purchased by Consumers Power Co., Mr. Gmeiner assumed the management of Citizens Gas Fuel. He was elected president in 1939.

During Mr. Gmeiner's 20-year term, the company more than doubled its customers, increased its volume sales more than 20 times, and quadrupled its plant investment.

Mr. Gmeiner will remain as a consultant, a director, and a member of the executive committee.

Mr. Tolford joined the firm as general superintendent in 1948. He became vice-president in 1953 and executive vice-president and general manager in 1957.

In another development, Robert Nystrom has been promoted to general superintendent. He joined the company as an engineer in 1953 and was named distribution superintendent three years ago.

Southern California opens new division office

SOUTHERN CALIFORNIA GAS CO. has taken a giant step forward in solving some of the major planning problems created for utilities and other community service groups by the continuous rapid growth and development in the once rural sections of southeastern Los Angeles.

Blue flames, illuminated by fluorescent lights, ascend the 60-foot pylon located at the front of Southern California Gas Co.'s new building

The company, through its new southeast division, has established an office and designed a building sufficiently flexible to be able to expand with the area it serves.

The building, which has a 14-foot ceiling, offers flexibility and privacy in its working areas by means of half walls that can be moved easily to provide more or less space as work loads change.

Described as "modern in every respect," the building features a 60-foot pylon at its entrance. On the sides of the pylon, in an ascending pattern, are large replicas of the gas industry's blue flame, each of which is illuminated by fluorescent lights.

Around the base of the pylon is a ceramic tile mural which tells the story of natural gas from its beginnings in prehistoric times to its many uses today. The mural was created by Jay Rivkin.

The front exterior of the building is made of glass, through which can be seen the company's displays of the latest gas appliances. An inner public area features a permanently installed model kitchen.

The new office is located in Downey.

New buildings

(Continued from page 7)

The building, once a six-story structure, has been increased to 15 stories. The total floor space amounts to nearly 194,000 square feet.

Other new buildings shown on these pages are the beautiful new Honolulu Gas Co. headquarters which stands as a shrine to the gas industry in Hawaii, the United Gas Corp. office building in Shreveport, La., and the United Fuel Gas Co. building in Charleston, W. Va.

● *Here is a convention feature you should not miss—starring Harry (the hip talk*

Harry Walker (r.) explains features of gas range to Roy Klein and Jan Chaney

Roy Klein describes advantages of gas range in Caloric

Caloric 'amateurs' wow audiences with a sales show that really sells

Fun is contagious.

"When the audience sees that we are having fun ourselves, they enjoy themselves, too." That is how Roy Klein, vice-president in charge of sales, explains the success of Caloric Appliance Corp.'s 1959 sales presentation which will be presented during the combined Industrial and Commercial Section and Residential Section meeting at the annual A. G. A. convention in Chicago.

Whatever the reason for success, there is no doubt that the audiences do have fun. In 18 cities from Los Angeles to Bridgeport, Conn., some 4,500 gas industry people who have seen the program have grinned, chuckled, belly-laughed and applauded for more.

Featuring Mr. Klein, Harry Walker, Caloric director of sales, and such attractive third parties as Broadway starlet Jan Chaney, the program ranges from straight product presentation, through song-and-dance-skits, bongo drum rou-

...e hip...alker, Roy (straight man) Klein, and Jan (Broadway starlet) Chaney

...rry Walker beats out dance rhythm on bongo drum for Jan Chaney

Roy Klein (l.), Jan Chaney, and Harry Walker form song-dance trio

tines, and soft shoe dances, to a rousing, singing finale.

At the A. G. A. Eastern Gas Sales Conference in Cincinnati in May, the show brought a curtain call to a standing ovation. Later, the performers received another standing reception when they rejoined the group at a luncheon.

This type of reaction, plus many letters of appreciation and comments from people who have seen the presentation, are convincing proof that the audiences enjoyed the show.

But the program is not straight entertainment. The basic aim of the presentation is to have people "learn while they laugh." Built into the gags and dance steps are a solid training program on product features, the Gold Star concept, and the value of enthusiastic, professional gas appliance selling.

Although entertainment as a part of sales training is not new, Mr. Klein says the Caloric presentation is different because "we think we have hit a middle ground. The show is not the usual dry, straight-talking presentation of product features; yet, it is not an entertainment 'spectacular' either."

Mr. Klein adds that the audience realizes that neither he nor Mr. Walker are professional entertainers, and for that reason, the people are more receptive. "They seem to become a part of what we are doing," he says.

There are three Caloric presentations, each similar, but each featuring a different subject. These include a product presentation of the 1959 Caloric freestanding line of ranges, a similar presentation of the Caloric built-in line, and a presentation of the Gold Star concept.

Presentations are tailored to the particular background of the audience for which the show is given.

The program usually takes the audience by surprise. Mr. Klein opens by explaining in detail the construction features and other points of Caloric products. Then, Harry Walker appears and there is a hint of the high-stepping tempo that is to come.

He makes such puns as "I'm from Louisiana but call me Tex. I don't like being called Louise." Not too seriously, he reviews some of the "old fashioned" selling ideas, then explains how a sale should really be made.

To demonstrate his ideas, Mr. Walker tells that three skits will be presented. From there on, it is pure entertainment with the Caloric group spoofing everything they have said previously.

To help the Caloric twosome, and to add a touch of professional entertaining and beauty to the show, they are joined by either Miss Chaney or a performer of equal status. With Mr. Walker as a "hep-cat" salesman known as "Harry-the-Hipster" and Mr. Klein and Miss Chaney as "Mr. and Mrs. Roy Prospect," the trio presents a fast-moving series of

songs, dances and dialogue. One of the acts includes a beret-bedecked Harry Walker taking a rhythmic turn at the bongo drums.

To sum up, the show makes possible an easy lesson in appliance selling.

To date, the show has been presented in Chicago and Quincy, Ill.; Los Angeles; New Orleans; Philadelphia and Reading, Pa.; Brooklyn; Miami; Moberly, Cape Girardeau, and Rolla, Mo.; Indianapolis; Columbus, Cincinnati, and Cleveland, Ohio; Bridgeport, Conn.; Milwaukee; and Fort Worth. The Caloric group has traveled more than 20,000 miles since the first presentation given in Miami in October 1958.

Lyrics for the program were written by Mr. Walker. He collaborated with Mr. Klein on the rest of the material.

Professional "leading ladies" joined the skit in each city. In the northeast, it was Miss Chaney, who has appeared in such roles as "Lola" in *Damn Yankees,* and who is being seen during the current summer season as "Daisy Mae" in *'Lil Abner.* She has also appeared in such television shows as *Cheyenne, Playhouse 90, Climax* and Joseph Cotten's *On Trial.*

Barbara Fennelon appeared in the New York area. In Miami, Marilyn Nagel was featured. Chicagoan Juanita Heim was the star in that area, while the Los Angeles shows featured Barbara Clarke, a frequent performer on TV's *The Red Skelton Show.*

Mr. Klein stoutly maintains that he has had no professional stage experience, but admits to amateur interests in that direction. Mr. Walker, who bears a striking resemblance to movie star Jack Carson, credits his sister for teaching him to dance when he was 15. He says his brother, Ed, a member of Caloric's sales staff and a certified Dale Carnegie instructor, groomed him for platform speaking. Jazz musical ability is a product of his high school days. Mr. Walker served part of his tour of duty in the Navy's Entertainment Branch while in the South Pacific.

What happens after the presentation at the A. G. A. convention? "We have already started to plan a similar show for next year," says Mr. Klein, "after we catch our breath."

Customer accounting

(Continued from page 21)

proportion of the total units of work involving the accounts; nevertheless, these references are 100 per cent important to the proper handling of many customer inquiries. Accounting efficiency will generally determine the nature and location of the account records; there are, however, some customer service requirements which also influence the location.

The records should be as close to the customer service center as possible. If this is not feasible, there must instead be effective communication from the point of contact with the customer to the point of placement of the records. The records must be up to date, because customer inquiries are generally current, and the customer cannot be told that the office information will not be available until the next week. It is when a notice goes out that a customer asks for an extension; thus, the payment record must be up to date. Many inquiries can be handled best by the clerk most familiar with the records, particularly if the records take the form of coded information. But, since there are some customer inquiries that require a visual reading of the records for proper handling, it is desirable that the records be available to be brought to the point of contact. This will be difficult where there is extreme centralization, and conference telephone circuits may be a necessary alternative.

In addition, there are some customer contacts—and these are likely to be the most difficult and time-taking—that involve more than one accounting record. The customer service employee should be able to go to one point for all of the information. A request for a credit extension that involves a reference to one point for account designation, to another for account status, to a third for credit classification, and to the credit supervisor for approval, cannot be promptly and smoothly handled. At the same time, however, consolidation of customer information in one record can create confusion, interference with the accounting processes, and delays in handling some types of inquiries, such as duplicate bill amounts and payment dates. Whether to localize various records for groups of customers or to localize the various items of information in one record is the problem of the accountant, but the customer service requirement, too, must be recognized and served.

Accuracy and promptness in furnishing information for customer service require that some parts of the accounting system be simple, no matter how complicated and involved the accounting processes and the machines and procedures may be. For example, there must be simplicity in a cross reference from name and address to account designation. There must be in the office the same simple information that is shown on the customer's bill and about which the inquiry is made. Payment due dates and collection dates must be instantly readable. Information must be relayed to a customer precisely and immediately, in order to avoid any thought on the part of the customer that the company's accounting is complicated or, worse, unbusinesslike.

This means, then, that there must be accessibility of records and a simple identification of information with a minimum of private codes, in order to provide a readiness of explanation. Psychologically, the company which gives a prompt response to requests for information is well on its way toward having a satisfied customer—even if the customer is wrong and the records are right. A customer will not believe the records if the information clerk has difficulty finding them, reading them, or explaining them—and a customer will be quick to perceive whether or not the clerk is in doubt about the matter.

Of course, this raises the question about the volume of customer inquiries involving references to records. If there is an undue number of these inquiries, it might be well to take an inward look at the procedure, in order to learn whether the cause for inquiries rests with the customer billing rather than with the customer.

There will be requests for duplicate bill information as long as the customer is asked to pay the exact amount of the bill, and there will be high bill complaints as long as the customer has trouble balancing his budget. There will be requests for extensions as long as we press for payments.

But there are many customer inquiries requiring references to records that should be analyzed, in order for the company to discover the reasons for the questions.

The customer will ask about odd period bills as long as they are not marked conspicuously. Inquiries will be made if prorated rental charges are entered without explanation, and if payments already made when the bill was sent out are not included in the bill.

Nothing much can be done about some of these matters, but we can agree that there is a cause and effect between the accounting procedure and the number of references to records, and that there is, therefore, an economic, as well as a customer relations, value in finding the right answers.

The foregoing customer service requirements upon customer accounting records have been stated without any judgment upon any system now used or proposed. In fact, customer operations can be served by various systems, by necessary adjustments of procedures, by training of employees, and by development of communications—all done for the purpose of improving service.

The secrets of service lie elsewhere than in the mechanics of accounting. They lie in meeting the expectations and desires of the customer. Shortening the duplicate bill time from 60 to 30 seconds is not necessarily improved service. A tired shopper might prefer to rest for the full 60 seconds. A quick check-up of deposit requirements may not be good service. A customer might prefer a more liberal deposit policy. The quick handling of a refused extension is not necessarily good service. A longer check-up and a granted extension would satisfy the customer more. Good service is more than method and much more than speed —good service is satisfaction. The purpose of drawing attention to this underlying factor of customer relations is simply to point out that ultimate customer satisfaction should be kept in mind in any modification of customer accounting practices.

We have come to four conclusions here that we hope will be helpful in planning revisions, reforms, and revolutions in customer accounting. They are the following:

1. The customer will adjust himself easily to a change in the frequency of meter reading, but he prefers to pay some kind of a bill each month.

2. The customer likes the form of the present bill, cryptic though it may be; but, since he is really interested only in the amount of the bill, he will not object to changes in the bill form that make sense.

3. When a customer presents an inquiry or a problem requiring a reference to the records of company dealings with him, he expects to find out what he wants to know accurately and promptly and to be treated with all the consideration that a good customer deserves.

4. The "customer" has an all-important place in "customer accounting."

Facts and Figures

(Continued from page 11)

total of 709,500 private and public dwelling units had been placed under construction. This figure, 32 per cent higher than the total for the first six months of 1958, was a new high for the period.

The influence of increased housing starts continued its favorable effect on shipments of major gas appliances which, during the first five months of 1959, registered impressive gains over the same period in 1958. Gas range shipments were up 13.3 per cent, gas water heater shipments rose 17 per cent, gas-fired central heating equipment increased 29.5 per cent, and gas dryer shipments climbed 51.4 per cent over the shipments in that period in 1958.

Total gas sales of the gas utility and pipeline industry in May 1959 were 13.1 per cent higher than sales in May 1958. The May 1959 total of 6,583 million therms was 760 million therms greater than the May 1958 total of 5,823 million therms. Residential and commercial sales in May 1959 were 3.8 per cent greater than the sales in May 1958. The gain was attributed primarily to the addition of about 851,000 new customers. Industrial gas sales in May 1959 amounted to 3,973 million therms, a figure 20.1 per cent higher than the May 1958 total of 3,309 million therms.

Industrial production in May 1959, as measured by the Federal Reserve Board index, was up 18.8 per cent over May 1958. The index of industrial production (1947-1949=100) for May 1959 was 152, 24 points higher than the index for May 1958. A. G. A.'s index of utility and pipeline sales was 256.0 (1947-1949=100).

Utility and pipeline sales during the 12 months ended May 31, 1959, totaled 83,295 million therms, an increase of 5.4 per cent over the 79,061 million therms consumed during the 12 months ended May 31, 1958.

GAS INDUSTRY INCOME STATEMENT

(MILLIONS OF DOLLARS)
(REFERS TO ALL DISTRIBUTING UTILITIES AND PIPELINE COMPANIES)

	TOTAL INDUSTRY			NATURAL GAS		
	Twelve Months Ended March 31		Per Cent Change	Twelve Months Ended March 31		Per Cent Change
	1959	1958		1959	1958	
Total operating revenues	$7,352	$6,682	+10.0	$6,987	$6,350	+10.0
Operating expenses—operations	4,723	4,312	+ 9.5	4,503	4,102	+ 9.8
Operating expenses—maintenance	250	233	+ 7.3	230	215	+ 7.0
Total operating expenses	4,973	4,545	+ 9.4	4,733	4,317	+ 9.6
Depreciation, retirements, depletion, amortization, etc.	497	443	+12.2	476	425	+12.0
Federal income taxes	541	491	+10.2	505	463	+ 9.1
All other taxes	372	335	+11.0	357	319	+11.9
Total taxes	913	826	+10.5	862	782	+10.2
Total operating revenue deductions	6,383	5,814	+ 9.8	6,071	5,524	+ 9.9
Net operating revenues	969	868	+11.6	916	826	+10.9
Other Income	95	88	+ 8.0	92	87	+ 5.7
Gross income	1,064	956	+11.3	1,008	913	+10.4
Interest on long-term debt	328	275	+19.3	315	263	+19.8
Other income deductions	(2)	22	—	(1)	13	—
Total income deductions	326	297	+ 9.8	314	276	+13.8
Net income	738	659	+12.0	694	637	+ 8.9

Industry news

Study on liquefied natural gas published

A SPECIAL STUDY on "Liquefied Natural Gas and the International Energy Market" has been prepared by John D. Balcomb, managing editor, *International Energy Reports on United Nations Economic Developments,* and is currently available at $25 per copy.

The publisher of the study, Worldmark Economic Publications, Inc., has also noted that discounts will be possible on large-quantity orders.

The study includes discussions of the history of liquefied natural gas, the technology of liquefied natural gas, the economics of liquefied natural gas, potential sources of supply of liquefied natural gas, and prospective markets for liquefied natural gas.

Orders should be directed to the publisher, Worldmark Economic Publications, Inc., which is located at 207 East 43 Street, New York 17, N. Y.

A. G. A. issues 'Gas Heating Controls Service Manual'

A. G. A. HAS ANNOUNCED the availability of a new handbook for the servicing of controls on gas central heating equipment and gas space heaters.

The handbook, "A. G. A. Gas Heating Controls Service Manual," includes service instructions for the various makes and models of gas heating equipment controls now in general use. It is designed for on-the-job use by plumbing and heating contractors, gas company service departments, and others concerned with adjusting, maintaining, and repairing gas househeating equipment.

The manual was a project of the Joint A. G. A.-Gas Appliance Manufacturers Association Committee on Gas Appliance Service Manuals. Material for the text and illustrations was supplied by various control manufacturers, who also reviewed the manual to verify its accuracy and authenticity.

The handbook will be kept up to date with a periodical supplement to be available on a subscription basis. Subscriptions will run for three years, and supplements will be provided three times each year.

The manual—contained in an 8½-inch-by-11-inch, three-ring, loose-leaf, vinyl-covered binder large enough to hold the supplements—presently includes more than 400 pages. There are 800 illustrations, including external views, cross sections, exploded views, charts, and tables.

The price of the "A. G. A. Gas Heating Controls Service Manual"—Catalog No. 23/U—without supplement service is $5.50. A subscription for the three-year supplement service—Catalog No. 23s/U—costs $4. The prices are postage prepaid.

The handbook should be ordered by title and catalog number from the Order Department, A. G. A., 420 Lexington Avenue, New York 17, N. Y.

Bruce A. McCandless named Gas Unity Committee chairman

BRUCE A. McCANDLESS, vice-president, Milwaukee Gas Light Co., has been named chairman of the Gas Unity Committee, a group organized in 1957 to develop a program of local-level education and advertising designed to promote the use of both city-main and liquefied petroleum gas.

As a pattern for its future operations, the committee has selected the "Milwaukee Plan," which has been proved in the field to be the most effective way of achieving successful marketing teamwork of gas utilities and LP-Gas distributors.

The text of the plan will be distributed by A. G. A. and the Liquefied Petroleum Gas Association (LPGA) to their member companies. The plan will also be presented in the fall at the meetings of a number of gas associations.

According to H. Leigh Whitelaw, secretary of the committee, the Wisconsin operation, which involves a gas utility and a group of LP-Gas dealers in a 25-to-30-mile area around Milwaukee, "has helped clear public confusion that usually results from promoting two different gas industries" and has helped sell the mutual public service goal of both industries.

"It was important to impress consumers with the fact that gas service is available wherever they live," Mr. Whitelaw said. "The 'Milwaukee Plan' has succeeded in making this impression by means of a cooperative program that faces up to practical competitive problems and converts them into mutually advantageous sales potential."

The results of this program, said Mr. Whitelaw, have been an improvement in the public's attitude toward gas and gas-burning products and a solid platform for the future expansion of the entire gas industry in the Milwaukee area.

Other members of the Gas Unity Committee are the following:

Representing LPGA: Howard D. White, executive vice-president, LPGA; W. R. Sidenfaden, president, Suburban Gas Service, Inc.; J. Woodward Martin, assistant sales manager, Shamrock Oil and Gas Co.; Arthur E. Bone, president, Ugite Gas, Inc.; and C. J. McAllister, president, The Partlett Gas Co.

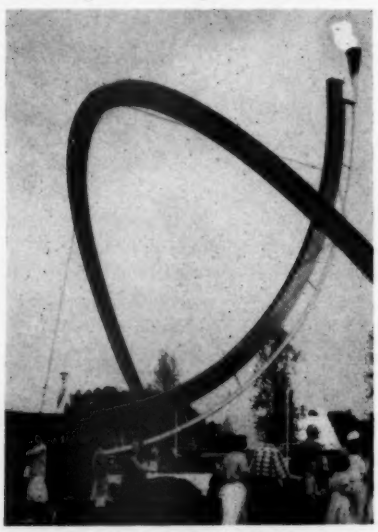
Representing the National LP-Gas Council: George J. Schulte, Jr., director of the council, and Glenn O. McGuire, vice-president, Union LP-Gas System, Inc.

Representing A. G. A.: C. S. Stackpole, managing director, A. G. A.; Mr. McCandless; Fred H. Faulstich, vice-president, Springfield Gas Light Co.; and Jerome P. Happ, vice-president-sales, North Shore Gas Co.

Representing the Gas Appliance Manufacturers Association: Mr. Whitelaw, executive vice-president, GAMA.

Ex Officio Members: F. Leslie Fagan, president, LPGA, and president, Gem Automatic Gas Co., Inc.; J. Theodore Wolfe, president, A. G. A., and president, Baltimore Gas and Electric Co.; and Edward A. Norman, president, GAMA, and president, Norman Products Co.

Gas lights Oregon festival



Oregon's centennial exposition, held recently in Portland, featured this "pyrohedron" built by Northwest Natural Gas Co. Devised by Duane Kelleway, industrial service engineer for the utility, the device sported an "eternal flame" which shot up 10 to 15 feet in the air once every four minutes. A double cone of stainless steel protected the flame from the wind. The beacon of light, stationed 60 feet above the ground, was supplied with gas by Pacific Northwest Pipeline Corp.

Michigan gas group elects Simpson president

JOHN B. SIMPSON, vice-president in charge of gas operations for Consumers Power Co., has been elected president of the Michigan Gas Association. He succeeds L. L. Perry, vice-president and general manager, Michigan Gas and Electric Co.

In addition, A. V. Brashear, vice-president in charge of gas operations for Michigan Consolidated Gas Co., was elected vice-president and Milton G. Kendrick, assistant to the vice-president in charge of sales for that utility, was re-elected secretary-treasurer.

W. C. Pierson elected president of Pennsylvania Gas Association

W. C. PIERSON was elected president of the Pennsylvania Gas Association during the group's recent three-day annual meeting in Pocono Manor, Pa. Mr. Pierson is general superintendent of gas operations for Philadelphia Electric Co.

Other officers elected were first vice-president, E. H. Smoker, president, The United Gas Improvement Co.; second vice-president, John E. Geesey, president, York County Gas Co.; third vice-president, Leonard B. Richards, vice-president, United Gas Improvement; and secretary and treasurer, J. A. Schultz, division accounting manager, United Gas Improvement.

In addition, four new members were elected to the association's governing council for three-year terms. They are John W. Carroll, general superintendent, gas transmission and distribution department, Philadelphia Electric; William J. Foster, vice-president, Geo. D. Roper Sales Corp.; John L. Harrison, general manager, Lancaster County gas division, United Gas Improvement; and Mervin P. Stermer, vice-president, York County Gas.

Among the featured speakers at the annual meeting were J. Theodore Wolfe, president of A. G. A. and president of Baltimore Gas and Electric Co., who reviewed the present status of the gas industry, including the growth in investments and customers; Charles H. Murphy, Jr., president, Murphy Corp., who discussed the legislative picture as it affects the production of natural gas; and Elmer L. Ramsey, vice-president, industrial relations, Laclede Gas Co., who considered labor unions in a talk entitled "From Rome to Reuther—The History of Collective Force."

Executives of the Pennsylvania Gas Association are (l. to r.) John E. Geesey, second vice-president; C. M. Swan, retiring president; W. C. Pierson, president; E. H. Smoker, first vice-president; and Leonard B. Richards, third vice-president. The association met recently for three days

Other speakers and their topics were Curtis Morris, manager of A. G. A.'s Washington, D. C., office, a review of the status of current legislation that may affect the gas industry; Fern B. Haverfield, general superintendent, Transcontinental Gas Pipe Line Corp., "How the Various Pipeline Companies Serving Pennsylvania Are Tied Together To Meet an Emergency in Case of Interruption in Service"; and William B. Tippy, president, Commonwealth Services, Inc., "Your Gas Business Faces the Rocket Age."

Laclede Gas Co. participates in two 'Blue Flame' homes in St. Louis

LACLEDE GAS CO. recently participated in the construction of a "Flair Blue Flame Home" in St. Louis, Mo. The promotional activity was sponsored jointly by the utility, by Famous-Barr Co., part of the May Co. department store organization, and by Maroon Brothers Construction Co.

Prior to this promotion, Laclede Gas cosponsored a "Blue Flame Forecast Home" in St. Louis with Famous-Barr and Mayer-Raisher-Mayer Construction Co.

The "Flair" home, located at Famous-Barr's Southtown parking lot, is equipped with a five-ton Arkla-Servel gas air conditioning and heating system, an RCA Whirlpool gas refrigerator, a Rheem water heater, a Caloric built-in gas range, an RCA Whirlpool combination gas washer-dryer, and five Arkla gas lights in the "Flair" model.

Laclede Gas supplied the cooling and heating unit to the builder on a consignment basis and assumed the cost of the water line installation. In addition, the utility ran two 1,000-line advertisements on the home.

Famous-Barr furnished the home in its Drexel line of Suncoast furniture. It also regularly mentioned the home in its advertisements, as did Maroon Brothers.

Attendance at the model home is expected to total 250,000 for six months. Moreover, at least nine subdivision homes have already been sold.

The "Forecast" home, built on Famous-Barr's Northland parking lot, included a Tappan built-in gas range, gas lights, and a gas water heater, heating system, washer and dryer, and refrigerator. It was furnished in Famous-Barr's Profile line.

Laclede Gas supplied the home with handout promotional literature throughout the exhibition period, which lasted six and one-half months. The utility also ran two 1,000-line advertisements on the home.

Total attendance at the home was 201,448 adults.

A. G. A. plans pipeline research forum

A. G. A.'S PIPELINE RESEARCH Committee will sponsor a research forum on Sept. 17 at the Statler Hotel in Dallas.

The purpose of the forum is to inform the gas industry of the progress of the pipeline research program.

Some of the projects which will be discussed are branch connections, secondary stress, line pipe research, flow equation research, internal coating, predicting wear in compressor engines, noise abatement, measurement of pulsating flow, and underground storage.

Representatives of the agencies which are handling the various research projects will be present at the forum to answer questions.

In addition, the forum will feature talks by Dr. F. H. Dotterweich of the Texas College of Arts and Industries and Kirby E. Crenshaw, president of Cities Service Gas Co. Mr. Dotterweich will discuss education, research, and progress and their relation to the gas industry. Mr. Crenshaw will present his forecast of the gas industry's future.

Further information about the forum is available from the Bureau of Research, A. G. A., 420 Lexington Avenue, New York 17, N. Y.

Oil firm forms gas unit

J. W. FERGUSON has been named general manager of Continental Oil Co.'s newly established intrastate gas and gas products department. Mr. Ferguson was formerly director of natural gasoline and gas operations.

A. D. Maxwell, previously manager of liquid petroleum gas sales, marketing department, has also been named to the department.

The department will operate Continental Oil's intrastate gas transmission lines, will seek opportunities for expansion and development of additional intrastate systems, and will be responsible for the purchase and sale of natural gas liquids.

Coal industry launches offensive against competitive fuels

THE COAL INDUSTRY has launched a full-scale offensive against the competitive fuels that have cut deep inroads into "traditional" coal markets. The offensive includes an attack on what the coal industry terms "the misuse of gas for industrial purposes."

Coal leaders, who are concentrating efforts on the amendment of the Natural Gas Act and the establishment of a government-coordinated fuel policy that would "assure coal a fair competitive position with oil, gas and atomic energy," have established a powerful new unified force in an attempt to accomplish these and other legislative ends.

The National Coal Policy Conference (NCPC) was organized on Feb. 25, 1959, to work for the advancement of coal industry interest. The organization is comprised of The United Mine Workers of America, coal producers, coal-carrying (but mostly diesel-powered) railroads, coal-burning manufacturers, and coal-burning utilities.

There have been previous attempts by coal industry management and labor to work together to help the coal industry; none of these, however, has worked for coal's "best interests" with as many groups as are included in the scope of the NCPC, which brings together all forces that depend heavily on bituminous coal.

George H. Love, chairman of the board, Consolidation Coal Co. of Pittsburgh, is chairman of the NCPC.

He is backed by such coal leaders as John L. Lewis, president, The United Mine Workers of America, who has suggested that coal industry labor and management "pool their resources in the interests of all"; and Joseph E. Moody, executive director, NCPC, and president, Southern Coal Producers' Association.

The NCPC's objectives are the following: "to educate the public on the importance and indispensability of coal, to end discriminatory practices which have hurt the [coal] industry and have cost it markets, to be ready if war comes, and to prepare for the tremendous energy demand expected in the future."

The NCPC's first national meeting, held on April 27 in Washington, was attended by more than 500 coal industry leaders, Congressmen, and other government officials.

Among the speakers were Messrs. Love, Lewis, and Moody; Philip Sporn, president, American Electric Power Co.; and H. E. Simpson, president, Baltimore and Ohio Railroad.

The "need for a balanced national policy on fuels" was stressed at the meeting. Delegates also were told that "short-range policies hurting the coal industry could have the effect of permanently injuring the [coal] industry and the interests of the American people."

Out of the discussion came the proposal for a National Fuel Policy Conference, that is, a group which would study the energy problems of the nation as they affect gas, oil, the atom, and coal.

During the meeting, Mr. Love cited the "restrictions placed on American exports by foreign countries" and the "periodic dumping of fuels competitive with coal in the United States during short-term periods of surpluses. The NCPC," he said, "asks for an unbiased joint Congressional committee to study this whole problem and to find a proper policy for balanced use of fuels, from a broad public point of view."

(Neil Regeimbal, Washington columnist for *Gas* magazine, said in the August issue, "Unable apparently to match the gas industry with convenience and cleanliness, or the electric industry with Betty Furness, the black gang boys are enlisting the aid of an expert competitor—Uncle Sam.")

Mr. Lewis stated that "more recognition would have to be given the long-neglected coal industry if it is to mobilize again to fulfill the requirements of another national emergency." He noted that many other nations either subsidize or nationalize their coal industries and called on Congress to write "ground rules to regulate competition among coal, oil, natural gas, and atomic power in a way fair to all."

Mr. Sporn predicted a national coal requirement of 1.2 billion tons annually by the year 2000 and an effective demand for more than double the present output by 1975. Nuclear power will grow, he said, but it will provide the equivalent of "only 50 million tons of coal for electric power generation by 1975."

In addition, he said that if coal is to fill its place in the future, it will require a reorientation of policy regarding coal and the coal industry. This, he added, will require "everyone—the coal industry, the government, the utility users, and all with an interest in the nation's welfare and with the responsibility of finding the means to assure the coal industry's survival."

Mr. Simpson said that "failure to evolve a well-reasoned, all-inclusive national fuels policy will seriously affect the ability of the railroads to serve all segments of the economy."

Mr. Moody underscored the need for a national fuels policy that "looks at energy resources as a whole, recognizing interrelations among various fuels, drawing on each source for its most efficient and desirable distribution. Today," he noted, "national legislation and governmental policies treat fuels in separate compartments.

"We contend," Mr. Moody continued, "that natural gas is being dumped for industrial purposes at coal's expense and at the expense of the household users of gas. If we are right, this practice should stop, and stop soon. Can we prove," he asked, "that the householder is charged more because the industrial user buys his gas cheaply? If we can, there will be powerful support for the coal industry's position from the average homeowner who has a gas furnace."

In addition, Mr. Moody advised the conference to "assemble the facts about the misuse of gas and to use them to coal's advantage." He suggested enlisting the homeowner who "does not want to subsidize low-priced gas."

(The Economics Committee of A. G. A. is currently preparing an analysis of the impact of any government restrictions upon interruptible industrial gas sales as it affects prices to residential, commercial, and firm industrial users. Such restrictions would, of course, result in poor load factors for producers, pipeliners, and distributors, and in the elimination of profits now derived from interruptible sales.)

North Shore Gas exhibits gas-lit parade float

North Shore Gas Co. celebrated the recent Waukegan, Ill., centennial with this gas-lit parade float. Included on the float were two "Charmglo" gas lamps, illuminated by bottled gas, and a giant wood-and-paper gas lamp, lit by a floodlight concealed in the base of the window screen-and-cheesecloth mantle. The float was in six parades in various areas served by the company

Pioneer Natural supplies gas for re-pressuring

PIONEER NATURAL GAS CO. has contracted to supply 15,000 Mcf of gas per day for a re-pressuring operation in the Headlee-Devonian field of Midland and Ector counties in western Texas.

The project involves 15 producing companies, which make up the Headlee-Devonian unit. Texas Gulf Producing Co. will be the operator of the project.

Because of the increased total recovery possible, the proposed re-pressuring operation has been described as an important conservation project and one of the largest such ventures in western Texas.

The 15,000 Mcf to be supplied by Pioneer Natural will supplement the Headlee-Devonian unit's own supply.

In addition to calling for the sale of gas, the contract specifies Pioneer Natural's retention of a preferential right to re-purchase an equivalent amount of gas when the re-pressuring ceases. Thus, the utility will not have depleted its gas supply; rather, it will have gained an additional underground storage facility.

Pioneer Natural, which expects to deliver the gas by Oct. 1, has already begun construction of a four-mile, 12-inch pipeline from the southern end of its transmission system to the Headlee-Devonian field.

Goldsboro receives gas

NATURAL GAS began flowing into Goldsboro, N. C.—the first major city in North Carolina Natural Gas Corp.'s new distribution network—on July 14.

Mayor Scott Berkeley of Goldsboro joined with a group of city and company officials in a ceremony which featured the lighting of a king-size jet that was mounted on a type of derrick structure. Similar ceremonies will be held in other cities when they receive gas.

When the company's $22,000,000, 630-mile, cross-state transmission system is completed, 31 communities in south-central and eastern North Carolina will be receiving natural gas for the first time.

GAMA initiates industrial plant tour program for utility personnel

THE INDUSTRIAL GAS EQUIPMENT division of the Gas Appliance Manufacturers Association has initiated a plant training tour program for utility industrial gas engineers.

The program is designed to supplement A. G. A.'s Industrial Gas School by providing training in gas application and combustion principles through visits to the plants of equipment manufacturers, tours of industrial plants with gas applications, visits to research and testing laboratories, and a variety of talks and demonstrations.

Each utility wishing to send a group on tour should notify the GAMA Plant Tour Committee of the manufacturers in which it is interested, of the dates most convenient for its group, and of the number of persons in its group. Each individual plant visit may not exceed the period of one day.

A group must include at least 10 and no more than 20 persons. GAMA suggests that utilities combine, if necessary, to form groups of the required size.

Each utility must assume the travel and living expenses, and must make all the transportation and hotel arrangements, for its own personnel.

GAMA will coordinate the visiting arrangements between the participating manufacturers and utilities.

Additional information and request forms for the program are available from Lowell F. Crouse, chairman, GAMA Plant Training Tour Program, P. O. Box 71, Muncie, Ind.

Canadian gas group elects Tanner president

NATHAN E. TANNER has been elected president of the Canadian Gas Association.

A former president of Trans-Canada Pipe Lines, Ltd., Mr. Tanner resigned in June 1957 and was elected chairman of the board of the firm. In December 1958, he resigned as chairman, but remained as a director.

Mr. Tanner is also a director of the Toronto-Dominion Bank, National Trust Co., Waterous Equipment, Ltd., Jenkins Groceterias, Ltd., The Alberta Gas Trunk Line Co., Inland Cement Co., Ltd., Alberta Ytong Manufacturing Co., Ltd., and Consolidated Freightways, Inc.

Other new officers of the Canadian Gas Association are first vice-president, R. C. McPherson, senior vice-president, Canadian Western Natural Gas Co., Ltd.; and second vice-president, O. L. Jones, vice-president and general manager, The Consumers' Gas Co.

The association's board of directors includes D. Cass-Beggs, general manager, Saskatchewan Power Corp.; J. W. Kerr, president, Trans-Canada Pipe Lines; T. C. Cross, vice-president, engineering and operations, Quebec Natural Gas Corp.; G. M. Douglas, general sales manager, Union Gas Co. of Canada, Ltd.; G. E. Downie, vice-president, operations, Wilcolator (Canada) Ltd.; Frank A. Schultz, director, Trans-Canada Pipe Lines, Quebec Natural Gas, and Canadian Delhi Oil, Ltd.; and J. H. Hobbs, vice-president and general manager, Bryant Manufacturing Co., Ltd.

Other directors are R. K. Farris, president, Northern Ontario Natural Gas Co., Ltd.; Leonard Milano, executive vice-president and general manager, Quebec Natural Gas; J. McMahon, president, Inland Natural Gas Co., Ltd.; J. W. Ostler, president and general manager, Canadian Meter Co., Ltd.; W. L. Dutton, manager of operations, United Gas, Ltd.; O. E. Zwanzig, general sales manager, B. C. Electric Co., Ltd.; T. C. Walker, general sales manager, gas heating division, Switson Industries, Ltd.; G. W. Parker, president, Mueller, Ltd.; B. F. Willson, executive vice-president, Canadian Western Natural Gas; and W. H. Dalton, managing director, the Canadian Gas Association.

Northern Illinois Gas engineer wins $5,150

Thomas Snedden, an engineer with Northern Illinois Gas Co., shows the device which he designed for checking insulating unions on gas service without interrupting the service. An entry in the company's employee suggestion program, the device brought Mr. Snedden an award of $5,150. The testing device is composed chiefly of a hand-crank generator and a transistor amplifier

Lone Star Gas Co. celebrates its golden anniversary

LONE STAR GAS CO. recently celebrated its 50th anniversary.

The golden jubilee festivities were led by L. T. Potter, president of Lone Star Gas and second vice-president of A. G. A. (Mr. Potter is currently A. G. A.'s nominee for its first vice-president.)

Lone Star Gas was chartered on June 4, 1909. During its first 17 years, it was mainly a producer and transporter of natural gas. In 1926, the company began the major development of its distribution operations. Subsequently, the company built hundreds of distribution plants and purchased numerous others already in operation.

One year after it was chartered, Lone Star Gas was operating 126 miles of pipeline from the Petrolia field (its sole source of supply) in Clay County to Fort Worth and Dallas. Besides those two cities, it served 10 others—a total of 14,719 customers.

Today, the company serves 834,000 customers in and near 458 Texas and Oklahoma communities, obtains its gas from 13,000 wells in 300 Texas and Oklahoma fields and reservoirs, and transports the gas through a 19,208-mile pipeline system. The area served by the utility totals 146,221 square miles—56 per cent of Texas and part of southern Oklahoma—and includes 3⅓ million people.

Mr. Potter points out that "Lone Star Gas has never had waiting lists. . . . It is . . . a constant challenge to the company to guarantee a continued supply of natural gas. . . . For that purpose, the search for natural gas supplies continues at an ever-increasing pace."

A. G. A. announces new publications issued during July and August

INDUSTRIAL AND COMMERCIAL

- **Brass Melting and Brass-Melting Practices,** Information Letter No. 102. Free.
- **Reverberatory and Other Large Furnaces for Melting Aluminum, Including Melting Problems and Practices,** Information Letter No. 103. Free.
- **Prepared Atmospheres,** Information Letter No. 104. Free.
- **Gas Air Conditioning Sales School Lectures.** Bound volume. $8.

PUBLIC INFORMATION

- **Why I Invested in the Gas Industry.** Revised edition. 1-100 copies, 10 cents each; 101-1,000 copies, nine cents each; 1,001-2,000 copies, eight cents each; more than 2,000 copies, seven cents each.

STATISTICS

- **Proved Reserves of Crude Oil, Natural Gas Liquids, and Natural Gas, Dec. 31, 1958, Vol. No. 13.** Free.
- **Monthly Bulletin of Utility Gas Sales, March 1959.** Free.
- **Monthly Bulletin of Utility Gas Sales, April 1959.** Free.
- **Monthly Bulletin of Utility Gas Sales, May 1959.** Free.

PROMOTION

- **Fall Gold Star Range Display, 1959.** $7.75 (F. O. B. Chicago).
- **Christmas Brochure: Jimmy Stewart and His Family.** $2.40. (F. O. B. New York.)

SECRETARY

- **Benefits of Company Membership in the American Gas Association.** Free.

ACCIDENT PREVENTION

- **Employee Accident Experience of the Gas Industry, 1958.** One copy, free to members, 25 cents to non-members; 2-50 copies, 25 cents each to members and non-members; 51-99 copies, 15 cents each to members, 25 cents each to non-members.
- **Safety Siftings, Vol. 4, June, No. 2.** 10 cents.
- **How Injuries to Gas Men Might Be Avoided, Vol. 8, June, No. 2.** One copy, free to members, 10 cents to non-members; 2-50 copies, 10 cents each to members and non-members; 51-99 copies, seven cents each to members, 10 cents each to non-members; 100-500 copies, five cents each to members, 10 cents each to non-members.

RESEARCH

- **Significance of Waste Heat Recovery Methods to the Gas Industry,** by Jerome Bartels, Martin Bensky, Abe Fox, and H. Schoenwetter. $3.

OPERATING

- **A Policy on the Accommodation of Utilities on the National System of Interstate and Defense Highways.** Free.

NEW FREEDOM

- **Gold Star Match Book.** 2,500 books equal one case. One case, $34.15; two cases, $64.50; four cases, $126.60; six cases, $189.90; 10 cases, $311.50.
- **Gas Lite Match Book.** 2,500 books equal one case. One case, $31; two cases, $58.50; four cases, $114; six cases, $171; 10 cases, $280.
- **Highwood Match Book.** 2,500 books equal one case. One case, $38; two cases, $72; four cases, $141.40; six cases, $212.40; 10 cases, $348.50.
- **Air Condition Match Book.** 2,500 books equal one case. One case, $33.70; two cases, $63.50; four cases, $125; six cases, $187.50; 10 cases, $307.50.

Gold Star promoted on TV in San Diego

Pat Nicholson (r.), manager of A. G. A.'s Hollywood Bureau, and Rod Sherry present the Gold Star to local viewers over KFSD-TV, San Diego. Mr. Sherry is the master of ceremonies of "Homemaker of the Week," a half-hour weekly show sponsored by San Diego Gas and Electric Co. The program features an interview with the "homemaker of the week," live cooking demonstrations, and presentations of outstanding appliances. There are no formal commercials. Mr. Nicholson's appearance was in conjunction with the introduction of the Gold Star Range promotion in the San Diego area

Houston Natural Gas Corp. launches builder incentive program

HOUSTON NATURAL GAS CORP.'S Blue Star and Super Blue Star Home Program was launched recently during a meeting of home builders from all areas of the company's system.

The company announced that, through December, it will give advertising and promotion allowances to builders of Blue Star and Super Blue Star Homes.

The advantages of participating in the program were explained by Proctor Thomas, vice-president in charge of sales for Houston Natural Gas. Mr. Thomas noted that customer acceptance of gas built-in and free-standing equipment was one of the biggest advantages.

In order to receive allowances under the Blue Star Home phase of the program, a builder must provide his home with an A. G. A.-approved gas built-in oven and top burners, gas central heating, a gas water heater with a minimum capacity of 30 gallons, a gas bathroom heater (if any such unit is included), and space and a gas outlet for a dryer. Under this program, the allowance per home will be $32 if the oven is vented and $20 if the oven is not vented.

In order to qualify under the Super Blue Star Home section of the program, a builder must provide his home with a Gold Star built-in gas oven and top burners, gas central heating, a gas water heater with a minimum capacity of 30 gallons, a gas bathroom heater (if any such unit is included), space and a gas outlet for a dryer, and space and a gas outlet for a refrigerator. The allowance per home will be $45. If the Gold Star range is unvented, however, the allowance will be $20.

Alec Huffman, first builder to announce participation in Houston Natural Gas Corp.'s Blue Star and Super Blue Star Home Program, signs an official entry form. Onlookers are (l. to r.) Ray Cooper, A. G. A.'s Southern regional manager; and Proctor Thomas and Frank C. Smith, the company's vice-president in charge of sales and chairman of the board of directors, respectively

Wilmington, N. C., receives natural gas; Tidewater Natural expands

ON JUNE 22, MAYOR E. S. Capps of Wilmington, N. C., turned a valve and sent natural gas into that southern city. The advent of the gas in the community was the result of six years of effort by Clifford B. Ewart, president of Tidewater Natural Gas Co.

In 1953, Mr. Ewart and several associates acquired in the Wilmington area five gas utility franchises that were formerly owned by Carolina Power and Light Co. The five-city system through which Mr. Ewart planned to bring the natural gas included Fayetteville, Kinston, New Bern, Washington, and Wilmington.

At the same time, P. McDonald Biddison began work on the organization of North Carolina Natural Gas Corp., of which he is now president.

The natural gas journeys some 1,500 miles to Wilmington from Texas via Transcontinental Gas Pipeline Co.'s system and North Carolina Natural's new transmission line.

North Carolina Natural's $22,000,000, 630-mile transmission project will eventually feed the gas to the five cities and to 26 additional communities in south-central and eastern North Carolina.

Tidewater Natural Gas is currently completing a $3,500,000 expansion and conversion program of its own system.

Gold Star shown in Tokyo

A Gold Star range and a variety of products of Robertshaw-Fulton Controls Co. were exhibited by Sanko Co., Ltd., at the Japan International Trade Fair held in Tokyo from May 5-22. Sanko is the exclusive sales representative in Japan for Robertshaw-Fulton Controls. About 1,500,000 visited the company's display at the trade fair

520 attend underground corrosion course

A RECORD 520 PERSONS from the United States, Canada, and Cuba attended the fourth annual Appalachian Underground Corrosion Short Course from June 2-4 at West Virginia University in Morgantown.

The course covered all aspects of underground corrosion with a series of lectures, motion pictures, exhibits, and demonstrations.

Following the course, officers were named for the fifth annual study program. They are general chairman, C. M. Rutter, Equitable Gas Co.; program chairman, D. A. Tefankjian, Texas Eastern Transmission Corp.; exhibits chairman, G. G. Campbell, West Virginia University; publicity chairman, John H. Alm, Dearborn Chemical Co.; and registration chairman, R. E. Hanna, Jr., West Virginia University.

1830 London gas light installed in New York

AN HISTORIC LONDON GAS lamppost has been installed in New York City in the garden of London House, headquarters of The British Book Centre, Inc. The occasion for the installation was the recent celebration of the book center's tenth anniversary.

The lamppost, built in 1830, originally stood on London's Orchard Street, between the House of Commons and Westminster Abbey. It survived the London blitz, but bears scars received during those bombings.

The British Book Centre, through its publishing program, brings to American readers books—written by both British and American authors—which were originally published in Great Britain.

Highlights of cases before the Federal Power Commission

Bureau of Statistics, American Gas Association

Certificate cases

● **Montana-Dakota Utilities Co.** has been granted temporary authorization to construct about 15 miles of pipeline and to install 1,540 additional compressor horsepower in Montana and a field gathering line in Wyoming. These facilities, which are expected to cost $1.1 million, will provide additional system capacity and will facilitate the supply of natural gas to the United States Air Force base near Glasgow, Mont.

● **Northern Natural Gas Co.** has applied for authorization to construct and operate underground storage facilities in the depleted Otis Field in Barton and Rush counties, Kan. The construction cost, which is estimated at $19.6 million, includes development costs, gathering and transmission lines, and compressor and dehydration facilities. Upon completion of the construction in November 1962, the company will be able to draw upon its extensive Hugoton reserves at more uniform rates and to avoid underproduction periods which might result in the cancellation of current allowables from that field.

● **Tennessee Gas Transmission Co.** has applied for authorization to construct about 76 miles of 30-inch loop line and 22,040 additional compressor horsepower at an estimated cost of $15 million. The application complies with an FPC directive of January 28, 1959, which ordered the company to set forth its over-all plan of underground storage facilities; to rearrange system facilities to balance delivery obligations with capacity; to provide existing customers with an additional supply of natural gas during the 1959-60 winter season, and to provide storage facilities for the New England market area.

● **United Fuel Gas Co.** has filed an application to construct nearly five miles of pipeline and 8,400 horsepower in compressor capacity onto its natural gas transmission system near Huntington, W. Va., at an estimated cost of 3.6 million. This project is part of an over-all plan to replace sections of the company's 50-year-old low-pressure transmission system between the Kenova compressor station on the west and the Lewis and Cobb stations on the east.

Rate cases

● **Algonquin Gas Transmission Co.** has filed a proposed $4.1 million, or 12 per cent, annual wholesale natural gas rate increase which would affect 25 wholesale customers in Connecticut, Massachusetts, New Jersey, New York, and Rhode Island. The proposal resulted from two increases by the company's sole supplier, Texas Eastern Transmission Corp. One increase has been in effect, subject to refund, since November 1957; a further rate increase is now under suspension until Dec. 1, 1959. In addition to the increased cost of purchased gas, the company claimed a 6½ per cent rate of return.

● **New York State Natural Gas Corp.** has applied for a $1.1 million, or 1.7 per cent, annual wholesale natural gas rate increase which would become effective on Aug. 2, 1959. This increase, which would affect 18 wholesale customers in New York, Ohio, and Pennsylvania, is designed to pass along a proposed increase—now under suspension—of a supplier, Texas Eastern Transmission Corp. New York State Natural Gas is continuing to collect, subject to refund, a $5.7 million annual increase.

● **Northern Natural Gas Co.** and its affiliate, **Permian Basin Pipeline Co.**, have filed for annual wholesale natural gas rate increases of $10.7 million and $326,000, respectively. Both companies have claimed a 6¾ per cent rate of return; in addition, Northern Natural Gas has cited increases in cost of service. Northern Natural Gas has pending two additional increases totaling $14.6 million. Permian Basin Pipeline has pending a previous filing for $762,000.

● In another FPC action **Seneca Gas Co.** of West Virginia was exempted from regulation under the Natural Gas Act, pursuant to the terms of the Hinshaw Amendment. This makes a total of 124 companies to be exempted, either fully or partially, since the Hinshaw Amendment became effective on March 27, 1954.

SUMMARY OF INDEPENDENT GAS PRODUCER RATE FILINGS—MAY 1959

	Number	Annual Amount
Tax rate increases allowed without suspension	1	$ 67
Other rate increases allowed without suspension	58	187,255
Rate increases suspended	58	8,669,887
Total rate increases	117	8,857,209
Tax rate decreases allowed without suspension	3	7,441
Other rate decreases allowed without suspension	2	1,964
Total rate decreases	5	9,405
Total rate filings	474	—
Total rate filings acted on from June 7, 1954, to June 30, 1959	38,801	—
Rate increases disposed of after suspension	24	199,463
Amount allowed	—	125,895
Amount disallowed	—	—
Amount withdrawn	—	73,568
Rate increases suspended and pending as of June 30, 1959	2,323[1]	$110,623,066[1]

[1] Includes one docket and two increases in G-6504, Delhi-Taylor, amounting to $1,746,562 remanded by Fifth Circuit Court on 6-3-58 and not previously shown in report.

A.G.A. car card design wins national award

Michigan Consolidated Gas Co.'s water heating car advertisement has been selected "Car Card of the Year" by the National Association of Transportation Advertising, Inc. The card, one of a series offered by A. G. A. to member companies, was designed for the Association by Cramer-Krasselt Co., Milwaukee advertising agency. Contest judges were (l. to r.) Otto Kleppner, partner in The Kleppner Co.; Robert M. Ganger, chairman of the board, D'Arcy Advertising Co.; Sidney M. Weiss, executive vice-president, Mogul, Lewin, Williams and Saylor; Donald K. Clifford, chairman of the board, Doherty, Clifford, Steers and Shenfield; and John P. Cunningham, chairman of the board, Cunningham and Walsh. Bank of America, Pepsi-Cola and Life Savers won honorable mention

'New York Herald Tribune' columnist defends Con Ed rate increase

THE FOLLOWING IS an excerpt from *Wall Street, U. S. A.*, a column written for the *New York Herald Tribune* by Donald I. Rogers. Mr. Rogers is business and financial editor of the *Tribune*. This excerpt appeared on Friday, June 19, 1959.

"Any one visiting this village of Manhattan might at first be a little annoyed with New York's giant utility, Consolidated Edison, for digging so many holes in the streets. A look heavenward, however, at the astonishing amount of new building going on in this hamlet would soon bring the realization that Con Ed has no alternative but to dig, for a growing New York.

"Beyond that, it's hard for me to understand why any one should be mad at Con Edison or, for that matter, at most any public utility. Electricity and gas delivered to my house so that I may use it at any time, day or night, is a mighty fine service and one for which I'm quite willing to pay. I've never felt that I was overcharged for either electricity or gas brought so conveniently to my home.

"Yet, when a public utility such as Con Ed asks for a rate increase, there's usually such an outcry that you'd think the utility's board of directors comprised old pirates whose sole intent is to gouge the last pennies out of widows and orphans.

"Last week, when Con Ed received approval from the New York Public Service Commission to increase its rates slightly, nearly every newspaper sprang up in alarm.

"The three big afternoon newspapers carried headlines proclaiming that Con Ed had received a rate increase of $8,400,000.

"This was perfectly true, but what it amounts to is an increase of 25 cents a month for each of Con Ed's 2,788,000 customers in New York City and Westchester. It means, in short, that I'll be charged $3 per year more for my electricity.

"It would be more accurate, it seems to me, for headlines to contain the information that I'll pay 25 cents more a month or $3 more a year, than the fact that out of it all, Con Ed will collect $8,400,000 more a year.

"Fact is, Con Ed, after paying taxes on the increase, will retain only $3,891,000. So nearly $5,000,000 of that increase Con Ed's customers will be paying will go to taxes. Without getting out my abacus, I'd say that's about 15 cents a month out of my quarter, that's being whisked away, first out of me, then out of Con Ed.

"In deference to the gentlemen of my craft, I think these misleading headlines get into the newspapers because such stories involving utilities are handled by city desks or general news desks and not by financial reporters. Any good newsman looks for the impressive figures in a story, and so does any good copy-desk man—the fellow who writes the headlines. Certainly, $8,400,000 is much more impressive than 25 cents.

"Never the less, this whole thing reflects an attitude of the American public towards its utilities—its publicly owned, tax paying public utilities." *(© 1959, New York Herald Tribune, Inc. Reprinted with permission.)*

LILCO gives class for Air Force personnel

LONG ISLAND LIGHTING CO.'S gas customer service department conducted a short course on gas appliance servicing and combustion from July 22-23 for the civilian maintenance personnel of the Continental Air Command.

The course was given at the request of the service personnel at Mitchell Air Force Base. It was conducted at the utility's Garden City service center by John H. Dennis, gas customer service manager; Walter F. Sondermann, staff engineer; and Edward S. Phillips and Harry B. Stahmer, training instructors.

The maintenance workers in attendance were from air bases in Indiana, Texas, Ohio, Georgia, Pennsylvania, New Hampshire, Tennessee, Minnesota, and California.

Included during the course were discussions of such subjects as the properties of natural gas, combustion, efficiency measurement, controls and wiring, flues, and good installation practices. During the lectures, references were made to A. G. A.'s "Gas Appliance Service Manual" and "Gas Heating Controls Service Manual."

As a result of the success of the course, Long Island Lighting's gas customer service personnel look forward to a closer liaison between the utility and Mitchell Air Force Base.

Wagner joins Houston Corp.

OWEN R. WAGNER has joined The Houston Corp. in St. Petersburg, Fla., as industrial gas engineer. Mr. Wagner was previously manager of industrial engineering for Milwaukee Gas Light Co. He is a member of A. G. A., the Wisconsin Utilities Association, the Midwest Industrial Gas Council, and the Milwaukee Engineers Society.

J. H. Satterwhite retires

JAMES H. SATTERWHITE, president of American Meter Co.'s Westcott and Greis division, has retired. He joined Westcott and Greis, Inc., as general manager in 1917 and continued in that capacity after the firm was acquired by American Meter in 1932. Mr. Satterwhite became president of the division in 1950. He is a member of A. G. A.

Philadelphia apartment community displayed at U. S. fair in Moscow

A SCALE MODEL of Philadelphia's ultra-modern Park Towne Place apartments was on display during the summer at the American National Exhibition in Moscow.

The model of the apartment community was selected for the exhibition by the United States Department of Commerce. It was taken to Moscow by its builders, Bernard Weinberg and Harry K. Madway, who participated in the exhibition's opening ceremonies with Vice-President Richard M. Nixon.

Each kitchen in the apartment community features a refrigerator, range, and sink in a pastel shade that harmonizes with the cabinet and wall color scheme. The ranges—all of which are Caloric Appliance Corp.'s Matchless model—are built in to the kitchens of all but the one-room efficiency apartments.

Park Towne Place includes four 19-story buildings—with a total of 972 apartments—a shopping colony, a medical center, restaurants, and a swimming pool and patio.

Apartments range from efficiency studios to suites with four bedrooms, two bathrooms, and a dining room. Each apartment has an outside view and individually controlled air conditioning.

The apartments' restaurants, open to both the tenants and the public, are outfitted with commercial gas cooking equipment.

Park Towne Place is the latest addition to a long list of deluxe apartment houses and developments in Philadelphia that have installed built-in gas ranges, according to Philadelphia Gas Works division of The United Gas Improvement Co.

This scale model of Park Towne Place, an ultra-modern Philadelphia apartment community, was displayed during the summer at the mammoth American National Exhibition in Moscow's Sokolniki Park

Public Service of Colorado studies conversion of coal mine to gas well

CONVERSION OF A COAL MINE to a storage vault for natural gas is being undertaken by Public Service Co. of Colorado. According to the company, this is the first time that such a conversion has been attempted anywhere in the world.

Testing operations are now under way at the Leyden Lignite Mine, located seven miles northwest of Arvada, to determine if the mine is gas tight. If the tests reveal that the mine is a suitable container for gas, the cavern will be developed as a permanent storage place for gas.

From 1903-50, the Leyden mine produced about 6,000,000 tons of coal. In 1950, when the mine was abandoned, there was a cavern of approximately 150,000,000 cubic feet. It is estimated that three billion cubic feet of gas can be stored in this cavern under a pressure of 300 pounds per square inch.

The purposes of the underground vault would be to store gas during periods of low use and to hold the gas ready for delivery during times of high use. The stored gas would greatly relieve the Denver area's present supply problem.

The mine is presumably full of water. Because the core seam slopes downward some 200 feet from north to south, it is possible that a pocket of trapped air may exist above the water level in the north end of the mine. If such an air pocket is found, it will be an indication of the tightness of the cavern.

Gas under pressure is to be injected through a 975-foot well drilled into the north end of the cavern. The first attempt at drilling an injection well has been unsuccessful, but a second well at another location is in progress. As the test continues, additional volumes of gas will be injected, forcing the water out of the mine back into its source or to the surface through another well to be drilled into the low south end of the mine.

An eight-mile gas line, the last three miles of which are a temporary installation, has been completed from Denver to the mine site. In addition, the company has begun injecting some 115,000,000 cubic feet of gas into the northern end of the mine. If that portion of the mine is found to be gas tight, the mine's four shafts will be sealed, and the rest of the mine will be filled with gas to test the entire vault for storage.

Rock cores taken during the drilling of the first well, together with other preliminary investigations, have indicated that the rock strata above and below the coal seam should form a gas-tight seal. It is possible, however, that porosity in the rock may permit gas to escape. If such is the case, silicon tetrachloride gas will be injected into the mine. This gas, which has an affinity for water and water vapor, will build up a deposit of water glass on the grains, and will gradually plug the porous sand.

If the entire cavern is found to be gas tight, the development of the mine as a storage vault will begin immediately.

The five-mile section of the gas delivery line leading to the mine will be permanently installed. Should the tests prove the storage project unfeasible, the three-mile temporary section of the line will be removed and salvaged, and the permanent installation will be converted to other use.

The line will have a daily capacity of 60,000,000 cubic feet of gas. Another line, with a daily capacity of 150,000,000 cubic feet, will be constructed from the mine to meet the company's distribution system in Denver.

In addition, facilities for pumping, regulating, metering, and dehydrating gas will be constructed. Dehydration will be necessary, because the gas stored in the mine will pick up moisture which will have to be removed before the gas is put into the distribution system.

Public Service estimates that the test phase of the operation will cost approximately $352,000. If the initial tests prove satisfactory, the development will require an additional expenditure of some $5,217,000.

Roanoke Gas ads honored

These advertisements are two of the series for which Roanoke Gas Co. was honored in the 1958 competition of the Public Utilities Advertising Association. A total of 156 awards was presented to 97 United States and Canadian utilities in 19 categories of advertising and public relations

Central Illinois Light re-elects all officers, directors

ALL OFFICERS AND DIRECTORS of Central Illinois Light Co. were re-elected at the company's recent annual stockholders meeting.

The officers are T. A. Schlink, chairman of the board; E. D. Edwards, president; G. W. Hathway, executive vice-president; W. W. Babcock, vice-president; E. W. Stone, vice-president; Q. W. Wellington, vice-president; H. A. Blair, comptroller and secretary; and R. J. Kelley, treasurer.

The directors are H. S. Eberhard, president, Caterpillar Tractor Co.; G. L. Luthy, president, Commercial National Bank of Peoria; H. J. Neumiller, president, Humitube Manufacturing Co.; C. V. O'Hern, member of the law firm of O'Hern, Alloy, O'Hern and Wombacher; R. J. Saner, vice-president, Springfield Marine Bank; and Messrs. Schlink, Edwards, Hathway and Babcock.

Baird retires as chemist

K. E. BAIRD, chief chemist of the Philadelphia coke division of Eastern Gas and Fuel Associates, retired on July 1. A member of A. G. A., Mr. Baird served as chairman of the Operating Section's Subcommittee on Plant Waste Disposal and as a member of the Manufactured Gas Production Committee, the Chemical and Engineering Committee, and the Committee on the Revision of the Gas Engineers' Handbook. In addition, Mr. Baird represented the industry on the United States Public Health Service's national technical task committee on industrial wastes.

Firm makes 'golden range'

Wister H. Ligon (l.), first vice-president, A. G. A., and W. Ralph Lawrence, Jr., president, Phillips and Butterff Corp., admire the "golden range" made in honor of the firm's 100th anniversary. The unit, the company's 7,000,000th gas range, is finished throughout in 22k gold

S. H. Nichols named president of National Fuel Gas; W. H. Locke retires

STUART H. NICHOLS, president and a director of Iroquois Gas Corp., has been elected president of National Fuel Gas Co. He succeeds William H. Locke, who has retired. Mr. Nichols is a director of A. G. A.

In a related development, Herbert D. Clay was elected president of Iroquois Gas, succeeding Mr. Nichols.

Iroquois Gas is a wholly-owned subsidiary of National Fuel Gas.

Mr. Nichols began his gas career in 1928 as a cadet engineer with Northern Indiana Public Service Co. He joined Iroquois Gas in 1931 as a draftsman, and subsequently held a variety of engineering, sales, and supervisory positions. In 1943, he was named vice-president. He became executive vice-president in 1953, and president in 1955.

Mr. Nichols was named a director of National Fuel Gas in 1950. He became vice-president in 1955.

In addition, Mr. Nichols is president and director of Penn-York Natural Gas Corp. and Iroquois Building Corp.

Mr. Locke became president of National Fuel Gas in 1955. He was previously president of Pennsylvania Gas Co.

Mr. Clay joined United Natural Gas Co., an associate company of National Fuel Gas, in 1933. He moved to Iroquois Gas as an engineer in 1946, was named chief engineer in 1952, vice-president in 1953, and executive vice-president in 1957. He was also recently elected president of Iroquois Building and Penn-York Natural Gas.

In addition, Louis R. Reif, a vice-president of Iroquois Gas, was elected a director of that firm, as well as of both Iroquois Building and Penn-York Natural Gas.

In another development, Donald E. Conaway, president of Pennsylvania Gas Co., was elected vice-president of National Fuel Gas. He has been a director of that firm since 1955. He is also president of Pennsylvania Oil Co. and Jefferson County Gas Co.

Finally, Roger B. Cobb, a vice-president of Iroquois Gas, was elected a vice-president of Iroquois Building.

Personal and otherwise

Wiand elected vice-president of Cities Service Gas Co.

BURTON F. WIAND has been elected vice-president in charge of the public and industrial relations division of Cities Service Gas Co.

Mr. Wiand joined the company in 1952 as manager of the public and industrial relations division. In 1956, he was elected to the board of directors.

Before joining the company, Mr. Wiand was with the Federal Bureau of Investigation, where he served consecutively as special agent, assistant special agent in charge, and administrative assistant to the director.

In 1946, Mr. Wiand was counsel for the Reconstruction Finance Corp. and, subsequently, director of compliance of the War Assets Administration.

From 1947-52, he was director of personnel and executive assistant to the executive vice-president for the Vendo Co., Kansas City, Mo.

Mr. Wiand is a member of A. G. A.

Davis M. DeBard resigns as Stone and Webster Service Corp. vice-president

DAVIS M. DEBARD has resigned as vice-president of Stone and Webster Service Corp. to become a consultant with Ashton B. Collins, president of Reddy Kilowatt, Inc.

Davis M. DeBard

Mr. DeBard, who was associated with Stone and Webster for 40 years, became vice-president of that firm in 1938. In 1926, he assumed charge of sales and promotion for all Stone and Webster operating companies in the United States and abroad. He remained in charge of those operations until he resigned.

Prior to joining Stone and Webster, he was associated for nine years with Brockton Edison Co. as a lighting salesman, power salesman, and public relations man.

Mr. DeBard is a past chairman of A. G. A.'s Residential Section.

During his career, Mr. DeBard was particularly interested in gas water heating. As a result, he was one of the first in the industry to advocate rental-ownership plans for gas appliances. He also was engaged in special studies on utility service for low-income groups.

Ohio Fuel Gas re-elects officers, directors

THE OFFICERS AND DIRECTORS of The Ohio Fuel Gas Co. have been re-elected for a one-year term.

The officers are A. W. Lundstrum, president; E. D. Bivens, vice-president and general manager; W. D. Betsch, J. A. Bieber, J. H. Lang, P. W. Rogers, H. A. Titsch, F. S. Williams, and H. H. Pell, Jr., vice-presidents; W. F. Laird, secretary; W. J. Curnow, treasurer; W. F. Smiley, assistant vice-president; Mr. Curnow and D. B. Leach, assistant secretaries; R. B. Herrold, L. H. Longanbach, and L. S. Williams, assistant treasurers.

Directors are J. C. Baker, G. S. Young, C. R. Van de Carr, Jr., C. I. Weaver, and Messrs. Bivens, Lundstrum, Rogers, and Williams.

Algonquin Gas elects Bowen, Thorn vice-presidents

Gordon C. Bowen

John B. Thorn

ALGONQUIN GAS TRANSMISSION CO. has announced the election of two vice-presidents.

They are Gordon C. Bowen, secretary-treasurer, and John B. Thorn, director of sales and rates.

Mr. Bowen joined Algonquin Gas Transmission as comptroller in 1952. Before that, he held executive positions with Pan American World Airways, Inc., and Pan American Grace Airways, Inc.

Mr. Thorn became director of sales and rates for Algonquin Gas Transmission in 1958. He began his gas industry career in 1935 as an accountant and gas analyst for Ford, Bacon and Davis, Inc. From 1950-57, he was secretary and assistant to the president of Portsmouth Gas Co.

Jacquel heads utility group

E. C. Jacquel

E. C. JACQUEL has been elected president of the Pittsburgh Chapter of The Producers' Council, Inc., for the July 1, 1959, to June 30, 1960, term. Mr. Jacquel is the architect and builder representative for The Peoples Natural Gas Co., where he has been employed for 15 years. He has represented both his company and A. G. A. on the council for the past seven years.

Names in the news—a roundup of promotions and appointments

UTILITY

James W. Williams has been named Muskogee district operating superintendent for Oklahoma Natural Gas Co. He succeeds **W. G. van Arsdale,** who retired on May 1 after 38 years with the firm. Mr. Williams joined the company in 1950 and was appointed Muskogee district assistant operating superintendent in 1956.

Southern Counties Gas Co. has announced three promotions in its general office sales department. **W. J. Altpeter** has been named to the new post of staff representative, builder promotion. **E. G. "Gam" Croom** has become staff representative, appliance merchandising, succeeding Mr. Altpeter. **H. E. Woodworth** has been promoted to coordinator, new construction promotion, replacing Mr. Croom. Mr. Woodworth was previously on the staff of the company's Harbor division sales department.

H. Read Shailer, Jr., has been named sales engineer for the northern division of The Connecticut Light and Power Co. He succeeds the late **James M. Blackford.** Mr. Shailer joined the company in 1947 as an industrial gas engineer and became industrial sales engineer in Waterbury in 1952.

Honolulu Gas Co. has announced five personnel changes in its sales organization. **William Haxton** has been named manager of merchandise sales in Honolulu. **Wallace Oi** has become manager of the Maui Island branch, succeeding Mr. Haxton. **Dale Teel** has been appointed assistant to the general sales manager in Honolulu. **James Putnam** has become manager of gas sales in Honolulu. **Angeline Gomes** has been named office manager and prospect coordinator of the distribution plant.

The Ohio Fuel Gas Co. has announced three personnel changes. **Robert D. Clinger** has been appointed associate editor of the *Gasco News,* the utility's bi-monthly employee magazine. **Marvin E. White** has been promoted to industrial sales manager of the Columbus district. He joined the firm in 1947 and became Athens district industrial sales manager in 1955. **Harold R. Rohr** has succeeded Mr. White in Athens. Mr. Rohr started with the company in 1951 and was named Fremont district industrial sales manager in 1955.

John R. Riley has been promoted to supervisor of sales and service for the Pittsburgh division of The Peoples Natural Gas Co. He joined the firm in 1951, and has served for the past two and one-half years as an assistant in advertising and sales promotion. Mr. Riley succeeds **Edward E. Stevenson,** who has been assigned to the general sales manager's staff. Mr. Stevenson joined the company 10 years ago. In his new post, Mr. Stevenson will be in charge of gas appliance merchandising activities with department stores throughout the Pittsburgh area.

Northern Ontario Natural Gas Co., Ltd., has appointed **E. C. Bovey** vice-president and **A. Hove** vice-president and chief engineer. Mr. Bovey joined the company in 1958 as assistant to the president. He is chairman of the public relations committee of the Canadian Gas Association. Mr. Hove joined the firm in 1958 as chief engineer.

Mrs. Hortense Bell has been named home service director for Hope Natural Gas Co. and The River Gas Co. Mrs. Bell, who was named Mrs. West Virginia of 1959, represented her state in the 1959 Mrs. America contest.

Harold C. Connal has been named southern division manager for Southern California Gas Co. He succeeds **Paul W. Walters,** who has resigned for reasons of health. Mr. Connal, who joined the company in 1940, has been serving as superintendent of customer service for the central division. Mr. Walters had been southern division manager since 1944. Both men are members of A. G. A.

Martha Parks has been appointed head of the home economics department of Lone Star Co.'s Dallas division. Miss Parks joined the company in 1955.

Anthony B. Young has been named advertising manager for The Peoples Gas Light and Coke Co. He succeeds **Raymond W. Fenton,** who has retired after 36 years. Mr. Young joined the utility 19 years ago and became assistant advertising manager in 1955. He is a member of A. G. A.'s Domestic Advertising Committee. Mr. Fenton was named advertising manager in 1951.

MANUFACTURER

Richard L. Wood has been named mobile home sales representative by Norge Division of Borg-Warner Corp. He was previously with Florence Distributing Co. In another development, **Edward J. Kanker** has retired from Norge after 22 years. Among the positions he held with the company were gas range sales manager and assistant to the president.

John W. Benson has been promoted to assistant national advertising manager for RCA Whirlpool home appliances by Whirlpool Corp. He succeeds **John Trux,** who resigned to become sales promotion manager for Bell and Howell Co. Mr. Benson joined Whirlpool in 1956 and has served recently as advertising sales promotion manager of the utility division.

Minneapolis-Honeywell Regulator Co. has announced five personnel changes in its Mid-Atlantic region. **Edward J. Klein** has been named regional industrial manager. **John J. Horner** has succeeded Mr. Klein as industrial manager of the Philadelphia branch office. **Carl F. Boehnlein** has been appointed industrial manager of the Richmond, Va., branch office. Mr. Klein, who joined the firm in 1935 and became industrial manager in Philadelphia in 1953, succeeds **O. B. Pyle,** who has retired from that post but remained as an account executive. Mr. Horner started with the company in 1937 and has served recently as a salesman. Mr. Boehnlein joined the firm in 1945 and became a branch sales engineer in 1950. He succeeds **W. H. Reynolds** in Richmond.

Elmer W. Cone has been appointed sales agent for Kirk gas refrigerators in Kansas and western Missouri by Kirk Industries, Inc.

Gilbert T. Bowman has been elected vice-president of Rockwell Manufacturing Co. He will be in charge of the international division and the petroleum and industrial division. Mr. Bowman joined the firm in 1940 and became assistant vice-president of the meter and valve division in 1956.

Charles H. Creasser has been named vice-president in charge of manufacturing for Walworth Co. He was previously with Combustion Engineering, Inc. In another development, **John Alico** was appointed director of engineering. Mr. Alico, who joined Walworth in 1958, was formerly with Theodore J. Kauffeld Associates.

Four engineers have been appointed to the design and engineering staff of Cribben and Sexton Co. They are **Donald M. Thomas,** electrical engineer, formerly with Du Bois Engineering and Manufacturing Corp.; **Mansfield E. Steinway,** mechanical design engineer, previously with Combustion Engineering, Inc.; **Lucas G. Tramontana,** mechanical engineer, formerly with Wheelabrator Corp.; and **Oldrich Fryc,** design engineer, previously with Westinghouse Electric Corp.

George F. Habach has been named to the new post of vice-president-administration for Worthington Corp. Mr. Habach, who was previously vice-president-engineering, has been succeeded by **Rear Admiral (Ret.) Albert G. Mumma.** Mr. Habach joined the company in 1929 and became vice-president-engineering in 1955. Rear Admiral Mumma was formerly chief of the Bureau of Ships for the United States Navy.

Charles O. Slaby has been appointed sales manager of appliances manufactured at the Waynesboro, Ga., plant of Perfection Industries, division of Hupp Corp. Mr. Slaby was previously with Coleman Co., Florence Stove Co., and Nesco, Inc.

Harold W. Wahl has been promoted to manager of American Meter Co.'s southwest division. Mr. Wahl, who joined the firm in 1919, was named manager of the southern division of Westcott and Greis, Inc., a subsidiary of American Meter, in 1950. He is a director of the Southern Gas Association and a member of A. G. A.

William D. Steele has been named director of planning for Robertshaw-Fulton Controls Co. He joined the company in 1946 and has served recently as district sales manager in the eastern states for the Grayson controls division.

Harry S. Walker has been named to the newly created position of director of sales for Caloric Appliance Corp. Mr. Walker, who joined the company in 1952, was previously sales promotion manager.

OTHER

Don Barton, sales manager, Skelgas division, Skelly Oil Co., has been named advertising committee chairman of the National LP-Gas Council. He succeeds **Donald G. O'Meara,** sales manager, Pyrofax

Gas Corp., who held the post for the past two and one-half years.

J. Edward Ashworth has joined Commonwealth Services, Inc., as a general consultant in the Houston, Texas, office. He was formerly Dayton, Ohio, representative for AVCO Manufacturing Corp. In another development, Herbert T. Blood has joined Commonwealth Services as an insurance consultant. He was previously insurance manager of Ormet Corp.

J. Ernest Smith, vice-president and director, Datamatic division, Minneapolis-Honeywell Regulator Co., has been awarded an honorary Doctor of Science degree by his alma mater, Jamestown College in North Dakota.

J. Robert Delaney, manager of gas sales, The Cincinnati Gas and Electric Co., has become president of the Cincinnati Optimist Club. The club sends more than 50 boys to Camp Meacham, Mentor, Ky., each summer.

Robert C. Cross has been appointed executive secretary of the American Society of Heating, Refrigerating and Air-Conditioning Engineers. He succeeds **Aubry V. Hutchinson,** who became executive secretary emeritus.

Stone and Webster Engineering Corp. has announced the election of four vice-presidents. They are **Harold F. Cleary, Donald N. McCord, M. H. Cutler,** and **William R. Prang.** Mr. Cleary and Mr. McCord, construction managers, joined the company in 1923 and 1941, respectively. Mr. Cutler, engineering manager, started with the firm earlier this year. Mr. Prang, West Coast district manager since 1955, joined the company in 1931.

James F. Purcell, manager of public relations, Northern Indiana Public Service Co., has been reappointed to the business relations committee of the United States Chamber of Commerce for the 1959-60 term.

Northern Natural elects Clark, Klemme vice-presidents

Earle A. Clark

Randall T. Klemme

EARLE A. CLARK AND RANDALL T. KLEMME have been elected vice-presidents of Northern Natural Gas Co.

Mr. Clark, who will direct the company's public relations, advertising, and promotion activities, was previously director of public relations.

He joined Northern Natural Gas nine years ago.

Mr. Klemme, who will be in charge of marketing, area development, research, and customer relations activities, started with the utility in 1958.

In another development, H. M. Sampson was named assistant vice-president. Mr. Sampson, who was formerly director of customer relations, has been with the firm for eight years.

OBITUARY

Neander W. Wade

vice-president of the Memphis (Tenn.) Light, Gas and Water Division, died July 20 after a heart attack. He was 60.

Neander W. Wade

Mr. Wade joined the division in 1922. He was secretary until January, when he was elected vice-president.

In addition, he was named secretary to the Memphis Board of Gas, Light and Water Commissioners in 1935. He became a voting member of that board in January.

During the 1930's, Mr. Wade was secretary of the now defunct Memphis City Water Board. That organization was eventually consolidated into the present combination division.

Mr. Wade, who was active in A. G. A. affairs, was chairman of the Subcommittee on Gas Industry Statistics and a member of the Committee on Economics during the 1958-59 term and was a past chairman of the Accounting Employee Relations Committee.

Mr. Wade is survived by his widow, two daughters, one sister, two brothers, and five grandchildren.

Elmer L. Ramsey

vice-president in charge of industrial relations for Laclede Gas Co., died July 3. He was 55.

Mr. Ramsey joined Laclede Gas in 1932 as assistant training director for customer service personnel. He became supervisor of customer service in 1936, manager of customer service relations in 1941, assistant vice-president of employee relations in 1947, and vice-president in 1954.

Before he joined Laclede Gas, Mr. Ramsey was a member of the cost accounting department of Utilities Power and Light Co.

Mr. Ramsey was a past chairman and member of the Personnel Committee of A. G. A.'s General Management Section. He was also a member of the Section's Managing Committee.

Mr. Ramsey is survived by his widow, Alice.

CONVENTION CALENDAR

1959

OCTOBER

4 •A. G. A. Board of Directors, Conrad Hilton Hotel, Chicago, Ill.

5-7 •Annual A. G. A. Convention, Conrad Hilton Hotel, Chicago, Ill.

11-16 •American Society for Testing Materials, Sheraton-Palace Hotel, San Francisco, Calif.

14-16 •Operating and Sales Convention, Wisconsin Utilities Association, Schroeder Hotel, Milwaukee, Wis.

20-22 •American Society of Association Executives, Annual Meeting, Boca Raton Hotel and Country Club, Boca Raton, Fla.

30-Nov. 1 •American Society of Heating, Refrigerating and Air-Conditioning Engineers, Semi-Annual Meeting, Traymore Hotel, Atlantic City, N. J.

NOVEMBER

2-5 •11th Exposition of the Air Conditioning and Refrigeration Industry, Convention Hall, Atlantic City, N. J.

2-6 •National Metal Exposition, Chicago, Ill. (A. G. A. will exhibit.)

2-6 •44th National Hotel Exposition, The Coliseum, New York, N. Y. (A. G. A. will exhibit.)

5-6 •A. G. A. Personnel Committee, Sheraton-Plaza, Boston, Mass.

9 •Committee on Natural Gas Reserves, Bureau of Statistics, Palmer House, Chicago, Ill.

9-13 •Commercial Kitchen Planning Seminar, Michigan State University, East Lansing, Mich.

10 •General Management Section Managing Committee, Sherman Hotel, Chicago, Ill.

12 •A. G. A. Mid-West Public Relations Workshop, Cornhusker Hotel, Lincoln, Neb.

19-20 •Accounting Section Managing Committee, Westward Ho Hotel, Phoenix, Ariz.

30-Dec. 2 •A. G. A.-EEI Electronic Accounting Machine Developments, St. Francis Hotel, San Francisco, Calif.

DECEMBER

1-4 •National Warm Air Heating and Air Conditioning Association, Annual Convention, Chase Hotel, St. Louis, Mo.

9 •ASA 1959 Annual Meeting and Standards Council Meeting, Plaza Hotel, New York, N. Y.

Personnel service

SERVICES OFFERED

Administrative-Executive Accountant—total of 28 years experience in all phases of utility accounting. Eighteen years on operating utilities' properties (16 years as treasurer, secretary and director of gas distributee company, last five years of this period also treasurer and secretary of interstate gas pipeline company). Nine years in holding company offices, and one year as chief field examiner for state utilities commission. Presently employed. Detailed resume on request. **1957.**

Advertising and Sales Promotion Manager—unusual combination of top engineering background, strong sales and marketing experience, and pronounced artistic ability. Fifteen years of successful and productive accomplishment in the heating and air conditioning fields. Big company background. Thoroughly familiar with all phases and details of national and local level advertising, sales promotion and marketing. Capable of setting up and managing dynamic and effective advertising department. Creative, seasoned, young (41) executive whose results spell quality, prestige, acceptance. Resume on request. Salary open. **1960.**

Customer Service Manager—former supervisor of customer service of large combination utility; headed 18-man staff handling service, credit and collection, high bill inquiries, correspondence, rate administration. Taught customer relations to company personnel, prepared publication material for customers, designed order systems and departmental record-keeping. Married, will relocate. Age 44. **1961.**

Gas Pipeline Engineer—graduate engineer with 12 years experience in design, construction and operation of natural gas and products pipelines. Desires a permanent position in South or Southwest. Registered professional engineer, age 40. Good health, available. **1962.**

Gas Engineer—graduate mechanical engineer with four years experience in gas industry, including LP-Gases and devices for the production of oil gas. Experience as assistant resident engineer and designer. Seeking position heading up design and development program. Immediately available. Detailed resume on request. Salary open. Married. Age 30. **1963.**

Plant Manager, Production Superintendent, Technical Manager—Eight years experience in chemical engineering both with the government (Ordnance Corps) and the chemical industry (DuPont). Good technical background and eight years supervisory experience. Well versed in business economics, development and process improvement work. Graduate of West Point and the University of Michigan. **1964.**

Manager-Stores and Automotive Operations—extensive experience in a large U. S. utility. Experience includes design and installation of company-wide IBM stores system. Developed guide to location, design, construction, organization of major warehouses. In automotive field, developed and installed a program of fleet cost reduction and measurement, scheduled preventive maintenance, standardization and mechanic training. Presently superintendent of maintenance for a seven-state fleet of 2,300 vehicles. **1965.**

POSITIONS OPEN

Manager—35-48 years old. Small natural gas property in South (22 employees). Excellent growth situation for promotion-minded man. Salary commensurate with ability, experience, education. **0899.**

Industrial Gas Sales Engineer—medium size, growing natural gas utility in Midwest has opening for experienced industrial gas engineer. This opportunity calls for a man with ambition and managerial ability. Write giving age and qualifications. **0900.**

Top Level Consultant on Gas Operations—opportunity with large engineering and management consulting organization. College graduate, with broad experience in natural gas operations including administration, engineering, operations and knowledge of economics of gas business including rates. Salary open—experience and capacity controlling. Send complete resume including education, experience, references and salary expected. **0901.**

Accountants—national consulting organization offers attractive salary and opportunity to men with competent experience in public utility accounting, systems and procedures, machine methods. College degree and previous experience in position of responsibility preferred. Send complete resume. **0902.**

Sales Engineers—for control system sales to the petroleum and gas industry. Must have E.E. degree or equivalent and at least two years experience in instrumentation and control field. Starting salary commensurate with experience. Will be working for established organization with headquarters in Pittsburgh, Pa. **0903.**

Development Engineer or Technician—manufacturer of gas heating equipment needs man to assist development laboratory work to consist of design, testing, model building, etc. Mechanical engineering background preferred but not essential. A. G. A. Laboratories training helpful. Salary commensurate with ability. Send resume. **0904.**

Gas Promotion Engineer—engineering degree with at least two years experience in the industrial, commercial and central house heating, air conditioning and miscellaneous appliances, covering gas sales, engineering, supervisory installation and service. Must be thoroughly experienced in preparing heating and air conditioning surveys and selling gas equipment for the promotion of gas sales on the northwest gulf coast of Florida. Starting salary, $452 ranging to $544 per month. Send full resume. **0905.**

Engineering Graduate—for expanding, medium-sized gas public utilities consulting engineering firm. Should have interest in business economics and finance and three to six years experience preferably in gas public utilities operations. Send resume. **0906.**

Rate Engineer—nationally known consulting firm has position with exceptional opportunity for graduate engineer having several years diversified training with operating gas or electric utility, with particular emphasis on cost of service determination and rate design experience. Knowledge of regulatory procedures desirable. Headquarters, Washington, D. C. Send detailed resume of experience and salary desired. **0907.**

Gas Engineer—central Illinois utility has opening for graduate engineer with two to five years experience. Work primarily in distribution design and planning. Send resume of education, experience and salary expected. All replies held confidential. Our employees know of this advertisement. **0908.**

Utility Accountant—outstanding opportunity to administer expanding utility accounting function (presently water and sewerage) for growing muncipality (present population 540,000). Salary to $9,400. Should have degree and four years accounting experience, at least one year experience in utility accounting. Apply Miss E. Fowler, Rm. 453 Civic Center, San Diego, Calif. **0909.**

Sales Engineer—established specialty manufacturer of hydronic gas heating and cooling equipment for residential and commercial applications, requires aggressive sales personality with engineering background who can present product line to jobbers, contractors, engineers and utilities. Must prepare heating layouts and render field assistance. Good remuneration plus commission and advancement to qualified applicant. Location, Eastern seaboard. Submit complete resume of education and experience. **0910.**

Gas Engineer—natural gas utility in Middle Atlantic states desires graduate engineer. Vacancies exist due to advancing age of present staff. Salary open. Send complete resume. **0911.**

Gas Heating Sales Engineer—medium size utility in Middle Atlantic states desires man with heating sales experience. Send resume in confidence. Salary open. **0912.**

Research Engineer—degree in petroleum, chemical or mechanical engineering for expanding work on problems in gas transmission and allied fields. Unusual opportunity for professional development. Industry-wide contacts. Education opportunities. Competitive salary. **0913.**

Staff Corrosion Technician—natural gas utility operating in Texas, New Mexico, Arizona, and Colorado needs staff corrosion technician with minimum of two years experience as corrosion technician and capable of designing cathodic protection installations, both sacrificial and rectifier anodes, to initiate protection program in El Paso, West Texas and Carlsbad districts. Age 26-40. Headquarters, El Paso. Travel required. Car furnished. Please include complete resume of qualifications in application. **0914.**

156 attend New England Gas Association gas measurement school

A RECORD 156 delegates attended the third Gas Measurement and Control School sponsored from June 10-12 by the Operating Division of the New England Gas Association. The three-day school was held at Worcester Polytechnic Institute. On the day preceding the school, some 200 delegates attended the Operating Division's spring meeting at the same location.

As a result of the Operating Division's conducting both events at the same place this year, the annual equipment display was greatly enlarged. Forty-one member companies participated in the exhibit, which featured cutaway regulators, meters, telemeters, computers, and other pieces of operating equipment.

The faculty for the school was composed of 43 representatives of gas utilities and manufacturers. There were 40 different class sessions, including both elementary and advanced subjects.

A committee of 15—representatives of 11 gas utilities, three manufacturers, and one service company—cooperated with the staff of the association in arranging the school. John L. Turnan, manager, plants and transportation, Worcester Gas Light Co., and past chairman of the Operating Division, was chairman of the school.

Columbia Gas Service Corp. elects Clarke vice-president

BERNARD J. CLARKE has been elected a vice-president of The Columbia Gas System Service Corp. He will be in charge of engineering and research for the entire system and of the gas engineering department at Columbus, Ohio.

Mr. Clarke joined the system in 1952 as an engineer in the gas engineering department. He has been chief supervisory engineer for the service corporation since 1956.

Mr. Clarke is also a vice-president of Columbia Hydrocarbon Corp.

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Pres.—Stuart V. Willson, Northern States Power Co., Eau Claire, Wis.
Man. Dir.—Dale F. Hansman, Empire Building, Suite 522, 710 North Plankinton Ave., Milwaukee, Wis.

American Gas Association

HEADQUARTERS, 420 LEXINGTON AVE., NEW YORK 17, N. Y.

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WASHINGTON OFFICE • Room 804, Securities Bldg., 729-15th St., N.W., Washington 5, D. C.

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Operating Section	HERBERT C. JONES	New England Electric System, Malden, Mass.
Residential Gas Section	THOMAS H. EVANS	Equitable Gas Co., Pittsburgh, Pa.

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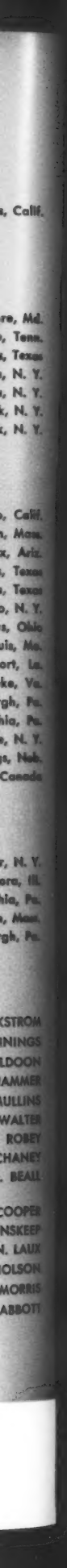
Director, Utilization Bureau	C. GEORGE SEGELER	Utilization Engineer, Washington	SEWARD ABBOTT

* EXECUTIVE COMMITTEE OF THE BOARD OF DIRECTORS.

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